EDUCATIONAL RESEARCH

A review for teachers
and all concerned with
progress in education

Published by the
National Foundation for
Educational Research
in England and Wales

Volume 13 No 1
November 1970

Readers will notice the changes which have been made to the cover design and internal layout of this issue of 'Educational Research' and which bring it within the new design policy for NFER publications as a whole. The new styling will now be standard, and it is hoped that as well as becoming more attractive visually the journal's contents will be more readily accessible by virtue of the inclusion of a brief summary at the beginning of each article.

Diary No. 202
Date 6.2.71
File No. S. K. B.
Bureau Ednl. Psy. Research

© 1970 National Foundation for Educational Research in England and Wales

Published by the National Foundation for Educational Research in England and Wales, The Mere, Upton Park, Slough, Bucks.
and Printed by King Thorne & Stace Ltd., Kingthorne House, School Road, Hove, Sussex BN3 5JE

EDUCATIONAL RESEARCH

A review for teachers
and all concerned with
progress in education

Published by the
National Foundation for
Educational Research
in England and Wales

Index to
Volume 13
(1970-71)

Contents

Volume 13 (1970-71)

Articles

page

1,000 Responses to English Literature—(1). *G. Yarlott and W. S. Harpin* 3

The Education of Disadvantaged Children: an international comparison. *Norman Wein* 12

The Role of the Primary and Secondary School Teacher. *D. R. Gibson* .. 20

CSE Grades and Teachers' Forecasts. *D. J. W. Sowell* 28

Occupational Choice and Attainment of ESN School-Leavers. *M. O. A. Durojaiye* 36

The Attainment of CSE and GCE Candidates in RAF Schools Overseas. *L. S. Skurnik and R. Wood* 44

The Influence of Handwriting on Assessment. *Dennis Briggs* 50

Parents' Attitudes to Education. *R. Pallister and J. Wilson* 56

Modern and Traditional Mathematics Teaching. *G. S. Gopal Rao, D. M. Penfold and A. P. Penfold* 61

The Relationship of Intelligence to Ability in Art. *Brian Allison* 66

Cautionary Comments on Some American i.t.a. Reports. *John Downing* 70

Big Words Bother Me. *R. Bishop* 73

1,000 Responses to English Literature—(2). *G. Yarlott and W. S. Harpin* 87

Children Receiving Remedial Teaching in Reading. *Asher Cashdan, P. D. Pumfrey and E. A. Lunzer* 98

Teacher Training and School Practice. *T. Derrick* 106

A Widening Gap Between Students of Science and Arts. *F. Musgrove* 113

The Effects of Counselling on Retarded Readers. *D. Lawrence* 119

The Attitudes of Teachers of ESN and Normal Pupils. *M. O. A. Durojaiye* .. 125

Programmed Learning in Paris. *James Hartley and Frank W. Hogarth* 130

page

TECHNICAL STUDIES RATING SCHEME. *R. Sumner* 135

SATISFACTION IN AN ACADEMIC SETTING. *Yehuda Amir and Moshe Krausz* 141

STREAMING IN THE PRIMARY SCHOOL—*a critique by R. Lynn and Susan L. Hampson with a reply by Joan C. Barker Lunn and Jill M. Tarryer* 146

DOING A DEGREE AT A TECHNICAL COLLEGE—WHO DOES AND WHY? (1). *Janet Askham* 151

SOCIAL CLASS FACTORS IN A NEW ZEALAND COMPREHENSIVE SCHOOL. *R. K. Harker* .. 155

CHECK-LIST FOR EVALUATING ANALYTICAL/LITERARY STUDIES. *J. Anderson* 159

STUDENTS' EXPERIENCE OF THICK SANDWICH COURSES. *A. Smithers* 171

SOCIAL CONTEXT OF IMMIGRANT PUPILS LEARNING ENGLISH. *S. M. Duorjaiye* 179

SCHOOL NON-ATTENDANCE AND DELINQUENCY. *T. G. Tennent* 185

MARRIED WOMEN TEACHERS—ROLE PERCEPTIONS AND CAREER PATTERNS. *A. Shepherd* 191

THE IMPLEMENTATION OF NUFFIELD O-LEVEL CHEMISTRY COURSES IN SECONDARY EDUCATION. *E. Jenkins* 198

TEACHERS ATTITUDES TO EDUCATIONAL CONTROVERSIES. *T. E. Crompton* 204

THE PLOWDEN REPORT'S RECOMMENDATIONS FOR IDENTIFYING CHILDREN IN NEED OF EXTRA HELP. *N. Ferguson, P. Davies, R. Evans and P. Williams* 210

ETHNIC RELATIONS IN A GIRLS' COMPREHENSIVE SCHOOL. *T. Robertson and T. Kawwa* 214

THE INFLUENCE OF FEEDBACK ON TEACHERS' PERFORMANCE. *E. C. Wragg* 218

THE EFFECTIVENESS OF SRA READING LABORATORY 2A WITH BOYS OF BELOW AVERAGE ABILITY. *Gordon McG. Schiach* 222

ATTITUDES OF STUDENTS TO THEIR TECHNICAL COLLEGE COURSES. *J. Askham* 226

OBSESSIONAL TRAITS AND ACADEMIC PERFORMANCE IN THE SIXTH FORM. *P. Kline* .. 230

THE 1965 MONITORING EXPERIMENT: A COMMENT, AND REPLY FROM *G. Peaker and N. W. Please* 233

EXAMINATION ACHIEVEMENTS OF HIGHLY SELECTIVE SCHOOLS. *Comments by M. J. Hutchings, D. G. Lewis, F. R. Watson with a reply by T. Christie and A. Griffin* .. 237

Reviews

page

HALF WAY THERE *by Caroline Benn and Brian Simon* 76

GUIDANCE AND COUNSELLING IN BRITISH SCHOOLS *edited by H. Lytton and M. Craft* .. 77

READING—WHICH APPROACH? *by Vera Southgate and G. R. Roberts* 77

EXPECTATION AND PUPIL PERFORMANCE *by Douglas A. Pidgeon* 79

OBJECTIVE TESTING *by H. G. Macintosh and R. B. Morrison* 161

BASIC SUBJECTS FOR SLOW LEARNERS *by A. A. Williams* 161

EDUCATIONAL RESEARCH IN BRITAIN *edited by H. J. Butcher and H. B. Pont* 162

SOCIOLOGY, HISTORY AND EDUCATION *edited by P. W. Musgrave* 245

SIX YEARS AFTER *by Kelsall, Poole and Kuhn* 245

THE SOCIAL PSYCHOLOGY OF EDUCATION *by D. W. Johnson* 247

MENTAL IMAGERY IN THE CHILD *by Jean Piaget and Berbel Inhelder* 249

A MANUAL TO THE SOCIOLOGY OF THE SCHOOL *by R. Lambert, R. Bullock and S. Millham* 251

1000 RESPONSES TO ENGLISH LITERATURE—(1)

G. YARLOTT and W. S. HARPIN *Lecturers in Education, University of Nottingham*

REMARKING the dearth of research into the study of English literature, the authors introduce their own investigation into the attitudes towards literature, and the reading preferences, of 1,000 'O' level and 'A' level pupils. The pupils put a high value on the subject and demonstrated a high degree of involvement. Television did not appear to have supplanted literature as a source of satisfaction, and a large majority of respondents favoured close textual study. Many students indicated a willingness to extend their own leisure reading, but there was hostility to some set texts, and different teaching approaches were also a crucial factor in engaging the pupils' commitment.

'*Our modern system of popular education has produced a vast population able to read, but unable to distinguish what is worth reading*' (G. M. Trevelyan, 1944).

'*There are some who seek to drive their pupils into liking literature. I once saw one such teacher banging a boy's head against the classroom wall and shouting "Enjoy it boy! Enjoy it!" He soon became a Senior English Master*' (A. J. Jenkinson, 1940).

From Fielding, through Egerton Brydges and Matthew Arnold, to Q. D. Leavis, F. R. Leavis, D. Thompson, Richard Hoggart and C. S. Lewis, there has been no lack of examination of the state of literature, of the reading public and of the responsibilities of English teachers for literature's current situation. Most contributions to this debate have been fiercely censorious; few have seen much hope in literature's future without some fundamental overhaul of systems for teaching English. In two articles, Paffard (1962) clearly demonstrated that, in an age dominated by research, this area of inquiry had been very largely neglected: 'because of the difficulty of applying acceptable objective methods, most of what has been written has tended to be descriptive rather than . . . "hard-core" experimentation.' Large-scale investigations of children's reading habits, attitudes to reading, levels and patterns of discrimination, the effects of examinations, form only a tiny fraction of his bibliographic references. Jenkinson (1940), Scott (1947) and Smith and Harrap (1957) provided extensive descriptions of reading habits, though the last of these is offered in too severely summarized a form to be truly useful and does not attempt, as do the others, a commentary on the findings. Whitehead (1956) offered a valuable supplement to this work in an examination of children's attitudes towards some novels commonly read in schools, while Britton (1954) extended exploration to responses to poetry in a now classic experiment. The best of the work investigating the interactions of poetry and the reader was well summarized in Valentine (1962). Paffard attempted a summary of some common findings: 'Boys' and girls' tastes are remarkably similar and even in areas where divergences are largest (in poetry, non-fiction, school stories) the differences are less than has been generally supposed; secondary school pupils prefer work written in easy language, dealing with themes that are relatively immature emotionally, in which they find it easy to identify themselves with the hero or heroine and in which the element of wish-fulfilment is comparatively open.' The results of an inquiry which we carried out in 1967 bear on these findings and contradict a number of common assumptions in these areas.

Since Paffard's useful survey was published, there has been a great deal of activity in English teaching and signs of a resurgence of interest in controlled observation of, and inquiry into, literature teaching and reading particularly, but as yet little of significance has emerged—a statement supported by the dismissive comment in *A Map of Educational Research* (Thouless, 1969), whose English section is devoted entirely to language investigations. There is promise of much more, as *English: a Programme for Research and Development in English Teaching* (1965) indicated; the areas under discussion below are given some prominence in Part II of that pamphlet. A new organization, the National Association for the Teaching of English, has emerged to provide not only a fresh outlet for reports on work in English teaching in its journal *English in Education*, but has also been commissioned by the Schools Council to undertake a major study of the roles of literature in the curriculum. In the period since Paffard reported, the journal *Use of English* has continued to present articles on these topics, though frequently these have been small-scale observations or arguments on the merits of particular texts for class or examination use. Among the most useful of these in the context of the present work have been Butts (1963) surveying reading tastes in 14 secondary modern schools; Bateman (1964) with a neat experiment involving the creation of a library of 338 books to observe their use in leisure reading by grammar school pupils; Mittins (1966) offering a survey of patterns of choice in 'O' and 'A' level texts over 11 years, and McElroy (1965) and Tucker (1968) on selection of texts and criteria for choice. A survey of girls' reading has appeared, following a line pioneered by Black and Schofield (1958): Lane and Furness-Lane (1967) reported on a sample of girls in a single comprehensive school, but this inquiry has limitations in both sample size and the form of the commentary on their findings.

Dale (1964) surveyed investigations of the effects on attainment in English of single-sex and co-educational schools, concluding that little real difference existed. A recent arrival, Inglis (1969), attempts to provide a full description of the results of two tests and a reasonably extensive questionnaire covering many of the vital areas in attitudes and responses to literature, using a sample of 480 children in their fourth secondary year. Harpin (1966) attempted an investigation of the discrimination processes used by children in responding to prose fiction and, in the course of that inquiry, looked at reading habits and attitudes in his 'O' and 'A' level sample.

The present inquiry does not pretend to an exhaustive coverage of all these matters—for this, a large-scale longitudinal study is urgently needed—but it does offer the results of exploring relatively deeply some highly specific areas.

Origins and methods of the present inquiry

In July 1967 a pilot questionnaire was constructed and administered to 500 selective school pupils, with the aim of exploring their responses to reading done in school as part of a GCE 'O' or 'A' level English Literature course, and to reading done at home for pleasure. After adjustments in the phrasing of some questions, together with some deletions and additions suggested by the pilot experience, the questionnaire which forms the basis of our main inquiry was sent out in March 1968 to 18 secondary selective schools in Nottinghamshire, Derbyshire and Lincolnshire, where it was completed by over 1,400 pupils. From these a sample of 1,000 was finally chosen: 800 'O' level and 200 'A' level candidates, divided evenly between boys and girls, co-educational and single-sex schools and, where applicable, upper and lower ability groups. Within the sub-sets of the sample, completed questionnaires were randomly chosen. The subjects were all able children who were being entered for the June 1968 GCE examinations in English Literature of six different examining boards.

Our subjects were told that the purpose of the questionnaire was to discover what they thought about the reading they were doing in school on their GCE literature course and about the books they read during their leisure time. They were advised that there were no 'right' answers to the questions and that, as they would remain anonymous, they could express their choices freely and honestly. The questionnaire was divided into two sections. Section I, the results of which are discussed below, contained questions structured on either a three- or five-point scale, aimed at testing responses and attitudes to GCE texts and to literature in general. Section II, the results of which will be published in our next article, invited subjects to express their personal reading tastes, preferences and discriminations. The reliability of the answers in this inquiry was confirmed by the striking consistency between the 1967 and 1968 results and by certain built-in checks designed to spotlight inconsistencies in answer patterns. Teachers from the schools concerned, with whom we have discussed the results of the inquiry, confirm that their pupils took the questionnaire seriously. In fact, of the 1,000 questionnaires finally examined, only eight were incomplete, and these in respect of only single items. (This does not include those questions where the absence of an entry was in itself revealing, as in the question asking for the titles of GCE texts strongly liked or disliked. Nor does it include the question in which subjects were asked to nominate their favourite authors.)

The results of Section I of the questionnaire are set out in Tables 1, 2, 3, 4 and 5 below. For purposes of illustration, Table 1 entries are arranged hierarchically, according to the total number of positive responses made to each question. In each column the upper left-hand figures represent positive answers, the lower right-hand figures negative responses. In all cases the neutral response figures are omitted for clarity's sake. Thus 266 'O' level boys gave a positive answer to Question 16, 39 a negative answer, and a balance of 95 offered the neutral 'I am not sure' response. The significance of differences between totals is denoted by a single or double asterisk: * (p=0·05); ** (p=0·01). Figures below the dividing line represent questions to which the total number of negative responses outnumbered the total of positive responses.

The value placed on literature generally

Some of these results are encouraging. They indicate that able pupils regard reading as an

Table 1: Responses to GCE literature and the value placed on literature generally

Quest. No.	Question	'O' Level				'A' Level				Total (1,000)	
		Boys (400)		Girls (400)		Boys (100)		Girls (100)			
16	Reading gives insight into the problems faced by other people	266*	39	299	27	84	4	85	5	734	75
14	Reading books agreed to be as satisfactory as watching TV	228**	35	287	19	81	0	88	1	684	55
4	Value of close textual study for the appreciation of literature	263	77	273	91	66	21	66	19	668	208
15	Reading gives insight into the behaviour of others	220*	71*	248	43	68*	11	82	8	621	133
2	Desire to read other books written by a GCE author	199**	80*	249	48	73**	15	91	2	612	145
6	Intention to read more novels after leaving school	200**	7	244	4	63**	3	99	0	606	14
12	Identification with feelings attributed to character in a book	189**	35	260	14	55	5	64	4	568	54
17	Reading acknowledged to provide insight into one's own peculiarities	164**	93*	216	63	59	14	58	10	497	180
1	Inclination to read again some of the literature read in school recently	128	148	149	123	63**	19	85	6	425	296
13	Emulation of an admired character in a book	97	187	88	174	33**	36	13	47	231	444
8	Intention to read more plays after leaving school	53	121	62	103	45	17	51	8	211	249
7	Intention to read more poetry after leaving school	36	186**	60	111	30*	19*	44	2	170	318
3	Desire to learn more about the background and history of English literature	41*	120**	72	82	14	30**	26	7	153	239
5	Discussion with friends in leisure time of school literature	29	118**	48	71	23**	8	45	1	145	198

important activity in their lives and that they value literature as a means of developing sensibility and insight into the feelings of others. In terms of Bloom's *Taxonomy of Educational Objectives* (*Handbook II: The Affective Domain*), upon the categories of which our questionnaire was partly structured, many subjects would undoubtedly score highly. Their willingness to respond to literature, the satisfaction they derive from reading, their acceptance of and commitment to literary values, suggest progress to an advanced stage along Bloom's proposed continuum of internalized values. These pupils, it seems, embrace and endorse many of our most cherished aims in teaching literature.

It is interesting to find that, contrary to widespread pessimism concerning this matter, television has not supplanted books for these young people as a means of providing satisfaction and enjoyment; only one subject in 18 professed to gain more satisfaction from TV than from books. The majority, two-thirds of the sample, affirm in Question 14 that as much satisfaction is obtainable from reading as from viewing. Reading is valued as a means of acquiring a better understanding of other people's problems and behaviour (Questions 16, 15) and, on a more personal level, as enabling one to identify with feelings of characters in books (Question 12) and to sense how one's own peculiarities might appear to other people (Question 17). Flat rejection of the values implicit in all these questions was relatively uncommon. Even Question 17, which reflected on the subject's own self-image, produced negative responses in fewer than one in five subjects.

To give intellectual assent to values set before one in a pencil and paper inquiry of this kind is no guarantee, of course, that the values endorsed have been adequately conceptualized or internalized. To assess whether subjects were genuinely committed to these theoretical valuations, some further validation was needed. An analysis of the pupils' own reading preferences (discussed in our next article) reveals that their preferred reading often emphasized material, such as the James Bond novels and 'light reading' generally, to which the ostensible valuation seemed critically inappropriate, being neither sufficiently understood apparently, nor sufficiently internalized to guide the subject's personal reading. It is as though many of these pupils have two sets of cultural values—one for school and the outside investigator, another for home and their leisure reading.

It is hardly to be expected that adolescents should have internalized literary values at a level of organization which would make their patterns of reading behaviour wholly consistent. Probably no one attains this advanced stage of the Affective Taxonomy until some years after the completion of formal education. Professors of English themselves indulge in lightweight reading occasionally, and few school teachers would wish to claim that undemanding reading, as a source of relaxation, is pernicious. An argument which is constantly reiterated against this sort of reading is, that by stimulating the most easily aroused feelings and impulses it tends to blunt the finer sensibilities in response to literature. Our subjects' valuations were certainly inconsistent in many cases and often contradictory and yet, for the majority of these pupils, they seemed to be pointing forward in the direction educationists would wish to encourage. Perhaps this is as much as can be hoped for in the school situation. To press for a deeper commitment, by attempting prematurely to channel children's tastes, might well be to run the risk of alienating some of that goodwill towards literature which manifestly exists in the group we have examined. Indeed, as our results show, the satisfaction and enjoyment which pupils derive from reading does not apply equally to all types of literature which the school sets before them. To some aspects of the GCE literature courses, as offered at present, there is massive indifference and indeed hostility.

English literature as a school subject

In some respects, responses to literature read in school were markedly favourable. Over half the pupils rated English as one of the more enjoyable subjects in the curriculum, while a third rated it as one of the more difficult—this evidently being intended as a compliment by the 136 pupils (57 'A' level, 79 'O' level) who rated English high both for enjoyment and for the difficulty it presents (Questions 10, 11).

Contrary to our expectations we found that a two-thirds majority favoured close textual study of set books (Question 4)—a result which contrasts sharply with the attitude adopted by most of Inglis's fourth-year pupils, for whom textual analysis came high in the list of classroom practices they disliked. In view of the fact that the GCE examinations were only three months away, the motives underlying the 668 positive responses among our subjects to this question may not have been entirely disinterested. Nevertheless, if working through prescribed texts is the drudgery it is often alleged to be, one might have expected that more than one pupil in five would have welcomed this opportunity of saying so. Perhaps the close study of plot, characterization, style and technique is a more intrinsically satisfying activity for 16- and 18-year-olds than is generally realized.

Subjects professed a refreshing willingness to read works by their GCE authors other than those works actually prescribed by the examiners (Question 2) and a desire to re-read some of their set books after leaving school (Question 1). Any course which whets the appetite for further reading in this way must, judged by this criterion at least, be accounted successful. The desire to read more novels was particularly noticeable. Of 1,000 pupils in our sample only 14 said that after leaving school they would never wish to read a novel again (Question 6). In view of this general willingness to receive and respond to good prose it is regrettable that some of the examining boards exercise such little judgement and imagination in their prescription of texts. As the figures in Table 2 indicate, Trollope's *The Warden* at 'O' level and *Bacon*: *Selections* at 'A' level appear to have presented few attractions for candidates in the 1968 examinations.

So much for the brighter side of the picture. Unfortunately, questions relating to literature read in school in the main produced fewest positive and most negative responses in Section I of the questionnaire. The 'O' level course normally requires a detailed study of three stock items—a novel (or equivalent prose work), a play and a poetry collection. The dislike which pupils expressed toward two of these elements was so pronounced as to give rise to serious concern. The reading of plays and especially poetry is obviously detested by many 16-year-olds. Two hundred and twenty-four said that after leaving school they would never wish to read another play, 297 that they would never again read poetry (Questions 8 and 7). Indeed, only one 'O' level pupil in eight showed any marked desire to continue these activities after leaving school. Even among boys sitting 'A' level English examinations, enthusiasm for reading drama and poetry was at a depressingly low level. Why are these forms of literature so unpopular, particularly when included as elements in the GCE literature course? Is it that the choice of set books is unsuitable, or that the teaching of poetry and drama too often fails to engage the interest of 16- and 18-year-olds? Or is it a function in part of wider socio-cultural factors which tend to encourage these negative attitudes?

Questions 21 and 22, in which we asked subjects to specify any GCE texts which they had 'very much ENJOYED' or 'very much DISLIKED' reading shed some light on this matter. Responses to these questions are classified in Table 2 below and they indicate that the choice of set book for a particular age or sex-group is critical. As regards drama, a play such as *The Long and the Short and the Tall* is very popular with both sexes at 'O' level, while *Romeo and Juliet* and *The Merchant of Venice* are much enjoyed by girls. At 'A' level, *Othello*, *King Lear* and *Anthony and Cleopatra* are generally popular, while *Dr. Faustus*, *Macbeth* and *Henry IV Part I* win favour with boys. On the other hand *Henry IV Part I* and *Strife* produced a very mixed reception at 'O' level and *Bartholomew Fair* was distinctly unpopular among 'A' level boys.

We leave readers to judge what ingredients there are in these particular plays, apart from the methods by which the teachers presented them, which may account for their widely differing appeal. Meanwhile, it is necessary to draw attention to the fact that whereas the small number of positive responses to Question 8 (Table 1) suggests that few pupils enjoy play reading, when it came to expressing their likes and dislikes of GCE texts, no fewer than 470 pupils expressed enjoyment of a particular drama text, against 190 expressed dislikes. There is thus the paradox that while only a few pupils signify a willingness to go on reading plays after leaving school, a high proportion of the pupils we examined evidently derived much enjoyment from the plays they were actually reading in school. Play-reading is an activity perhaps in which youngsters welcome the guidance of an experienced teacher (a supposition which is reinforced by the response to our earlier question on the value of close textual study—Question 4). At all events, it seems that the study of drama as literature for examination purposes is an activity which arouses strong feelings on both sides. Whatever pupils' attitudes toward particular GCE drama texts, there is clearly little or no animosity towards drama as such. In the 1967 pilot questionnaire we asked 500 'O' and 'A' level pupils whether they would welcome more opportunity of seeing plays performed in the theatre. The response was overwhelmingly positive: only 12 per cent gave a negative reply.

Responses to poetry present a gloomier picture and can be clearly differentiated between those of an enthusiastic minority and those of an indifferent or actively hostile majority. The enthusiasts often listed as many as a dozen poems which they had enjoyed reading on the GCE literature course. At 'O' level they liked poems about war. *The Nun's Priest's Tale* was popular with boys, as was *Keats: A Selection* with girls, while *The Pardoner's Tale* produced rather a mixed response. At 'A' level *The Prologue to the Canterbury Tales*, and selections from Graves, Donne, Hardy, Eliot and Keats all went down well in those schools which had elected to read them. However, 'A' level pupils expressed considerable dislike for much of Milton's poetry and for Chaucer's *The Clerk's* and *Canon Yeoman's Tale*. At 'O' level four of the standard school poetry anthologies were either rejected in their entirety or ignored without comment by a large majority—23 likes and 93 dislikes being registered for these four works collectively. The fact that one in eight of the 'O' level pupils offered no titles which they had either liked or disliked is a measure perhaps of their level of indifference towards the texts studied: all 200 'A' level pupils cited at least two titles. Where 'O' level pupils registered their dislikes of particular poems, their citations were not infrequently reinforced by ribald, unsolicited comments. Moreover, as will be seen in our next article, poetry scarcely figures in the 16-year-old's preferred range of reading.

In Table 2 the criterion for listing is set at 3 : 1 approximately for or against a particular text. Where only one sex reaches this level, or a reversal of preference takes place, an asterisk is used. The first figure in each case is for liking, the order of texts being determined by the boys' ratio of likes to dislikes.

The large differences in absolute numbers of expressed likes/dislikes is largely explained by the relative popularity of different examining boards among the schools used.

In all there were 1,720 citations of texts (or items within texts such as poetry anthologies) expressing a favourable response (1,150 at 'O' level, 570 at 'A' level), against 980 (640 at 'O' level, 340 at 'A' level) expressing dislike.

Choice of text, though critically important, is clearly only one determining factor governing responses to drama and poetry. The methods by which these forms of literature are taught is probably more crucial. We are not concerned here with deciding what constitutes good teaching, but only with investigating the 'consumer's' responses to literature in school. These indicate that individual teachers differ very considerably in their success in arousing interest and enthusiasm for a particular text or, in some cases, for literature in general. Within the same school, whereas nearly all the pupils in one class expressed a liking for *Henry IV, Part I*, pupils in another form expressed almost unanimous dislike for this play—perhaps in part the result of a group conditioning process in a streamed school. Similarly with the teaching of poetry: the 400 'O' level boys in our sample were drawn from a total of 29 classes or sets in 10 different schools, yet the 36 boys who gave a positive answer to question 7 came very largely from just six of those classes. In analysing the results of the questionnaire we noticed again and again how widely within the same school individual classes differed in their responses.

Responses to school literature were disappointing also in that, except in the case of highly committed 'A' level girls, the survey revealed little desire among pupils to learn more about the background and history of English literature, even among those boys who might be expected to read English at university (Question 3). There are many reasons for arguing about the precise place, nature and function of such studies in literature, but the indifference shown by our sample cannot be looked upon as encouraging. More depressing

Table 2: Pupils' expressed likes and dislikes for their GCE texts

'O' LEVEL	BOYS	GIRLS
Animal Farm	17:0	26:11*
Lord of the Flies	15:0	11:3
War Poetry in Anthologies	5:0	5:0
Romeo and Juliet	3:0	36:3
The Long and the Short and the Tall	58:3	28:5
The Merchant of Venice	—	22:2
Short Stories of our Time	19:4	27:0
Nun's Priest's Tale	17:4	—
Kipling (prose anthology)	4:1	3:10*
A Tale of Two Cities	—	8:2
Strife	3:1	18:34*
A Pattern of Islands	8:3	5:0*
Great Expectations	23:10	18:0*
Macbeth	17:10	41:5*
The Pardoner's Tale	8:7	7:21*
20th Century Short Stories	2:2	3:0*
Keats: A Selection	4:5	22:6*
Wuthering Heights	9:11	38:2*
Henry IV, Part I	59:62	14:43*
Conrad: Four Stories	—	6:18
Rhyme and Reason (poetry anthology)	12:46	5:17
The Warden	7:27	0:1*
Poems of Spirit and Action	1:4	0:2*
De Coverley Papers	1:5	1:1*
Cider with Rosie	—	0:3
A Book of Narrative Verse	0:4	1:2*
A Pageant of Modern Verse	0:12	4:6*

'A' LEVEL	BOYS	GIRLS
R. Graves: Poetry Selection	—	14:0
D. H. Lawrence: Short Stories	12:0	—
Tess of the D'Urbervilles	9:0	—
A Passage to India	6:0	16:0
Macbeth	5:0	2:1*
Keats: Odes	3:0	5:0
T. Hardy: Selection of Poetry	2:0	6:1
To the Lighthouse	1:0	18:2
Dr. Faustus	21:1	3:1
Othello	19:1	40:3
Henry IV, Part I	11:1	1:0
Prologue to the Canterbury Tales	9:1	2:3*
The Old Wives' Tale	11:2	27:2
King Lear	21:4	11:0
T. S. Eliot: Poetry Selection	9:2	9:3
A Portrait of the Artist as a Young Man	8:2	8:5*
Joseph Andrews	7:2	—
Antony and Cleopatra	7:4	9:1*
Peacock: Three Novels	2:1	1:5*
Donne: Poetry Selection	8:6	11:1*
The Clerk's Tale	1:2	1:15*
Comus	1:5	0:6
Framley Parsonage	1:5	0:6
The Canon Yeoman's Tale	2:12	0:2
Paradise Lost, Book I	1:6	8:9*
Paradise Lost, Books IX, X	1:7	—
Middlemarch	1:7	6:3*
Bartholomew Fair	1:8	—
Microcosmographie	1:9	—
H. James: Short Stories	1:10	—
Emma	0:3	11:1*
Culture and Anarchy	0:4	0:5
The Courtier	0:9	—
Bacon: Selections	0:11	—

still, there was very little inclination, especially among boys, to engage in voluntary discussion of literature outside the classroom (Question 5). It is possible of course to argue that sufficient time and opportunity is allowed during normal lesson time in most schools to satisfy pupils' need to talk about their work, but one would have hoped that the excitement generated by discoveries in literature would have spilled over more frequently into pupils' leisure time. We leave others to judge whether the responses to Questions 3 and 5 of 'A' level pupils, who may be going on to read English in higher institutions, should be considered satisfactory or not.

It is worth re-emphasizing that this investigation is concerned only with the responses of very able pupils, of the successful 'achievers' deemed likely by the schools in our sample to succeed in GCE literature examinations. The responses of less able pupils, including those weeded out by 'mock' GCE examinations, would probably be significantly less favourable toward school literature than those of pupils with an obvious investment in the subject.

Boys versus girls

Predictably, girls' attitudes to literature at both 'O' and 'A' level proved more favourable than boys' on the majority of inquiry items. This difference in attitude failed to achieve a statistically significant level in questions relating to the value of textual study (Question 4) and to the desire to read more plays (Question 8), but even here girls' responses were in the generally indicated direction. Only in response to one test item was this tendency reversed—Question 13. The boys' greater readiness to emulate characters in books may be construed perhaps as a further indication of their relative immaturity as compared with girls. This interpretation seems to be borne out by the fact that many of those boys who gave a positive response to Question 13 nominated the James Bond novels as their favourite reading. But note here the evidence at 'A' level.

The major sex differences revealed by this survey pose some problems for English teaching. Girls differ appreciably from boys not only in attitudes, motivation and emotional maturity, but more specifically in their tastes and discriminations. Evidence of this point is so strong as to raise the question whether English literature should be taught co-educationally. Should schools and examining boards recognize and accept the significance of these sex differences and allow much greater freedom of choice, or should they regard these differences as a challenge to try to broaden bases of response? Should schools experiment far more than at present with segregated literature teaching sets for particular purposes, or would the socio-educational losses entailed outweigh any possible gains?

Our sample was constructed specifically to compare the effects of single-sex and co-educational teaching which, the pilot study indicated, might be worth investigating. Speculatively, it might be supposed that the co-educational situation would be the more congenial to literature teaching, other things being equal. The results of the pilot inquiry led us to doubt this. It was therefore hypothesized that pupils from single-sex schools would respond more favourably to literature than their peers in mixed schools. The evidence provides a measure of support for this hypothesis. For the boys in our sample the bias in favour of single-sex schools was only marginal, but constant in direction. A similar situation obtains for 'A' level girls, but in the case of 'O' level girls the bias was much more apparent.

To compare single-sex with co-educational pupils in their overall response patterns a numerical value was assigned to each of the questions listed in Table 1 above. Thus a positive answer scored +1, a negative answer −1, and a neutral answer 0. Individual scores were then computed for each subject and totalled (Table 3). The differences between boys and girls are again emphasized and, rather surprisingly, maintained at a proportionately equivalent level from 16- to 18-year-olds. The higher totals for pupils in single-sex schools are a constant feature, though the size of the difference is notable only for 'O' level girls, and even so does not reach the five per cent level of significance.

Table 3

'O' LEVEL			
Boys		*Girls*	
Single Sex	Mixed	Single Sex	Mixed
419	398	848	734

'A' LEVEL			
Boys		*Girls*	
Single Sex	Mixed	Single Sex	Mixed
299	272	405	371

Questions 10 and 11, which explored, respectively, views on the difficulty of English literature and its enjoyableness, as measured against other school subjects, yielded further information on this topic. Of nine possible combinations of answers on these questions, three are positive, three represent a measure of indifference and three are negative. The results in Table 4 are distributed among these three groupings.

Table 4

	'O' LEVEL			
	Boys		*Girls*	
	Single Sex	Mixed	Single Sex	Mixed
Positive	96**	70	109	114
Negative	38	55	24	16
Indifferent	66	75	67	70

	'A' LEVEL			
	Boys		*Girls*	
	Single Sex	Mixed	Single Sex	Mixed
Positive	40	36	45	43
Negative	5	2	0	1
Indifferent	5	12	5	6

In addition to the significant difference between the groups of 'O' level boys on positive responses, Table 4 also shows the highly significant differences between 'O' level boys and girls in mixed schools for both positive and negative answers, in contrast with the single-sex situation. This may suggest that these boys are markedly affected in their response to literature teaching by some undiagnosed elements in the co-educational situation.

However, when pupils were asked (Question 9) 'Given the choice, would you prefer to be taught English literature in a co-educational or a single-sex class?' they came down heavily in favour of co-education.

Table 5

'O' Level Boys		'O' Level Girls	
Single Sex	*Mixed*	*Single Sex*	*Mixed*
109 15	156 1	90 6	143 3

'A' Level Boys		'A' Level Girls	
Single Sex	*Mixed*	*Single Sex*	*Mixed*
26 2	40 0	17 6	47 1

The upper left-hand figure represents a preference for co-education, the lower right-hand figure a preference for single-sex classes.

Only one boy among 250 from mixed schools expressed a desire for single-sex classes, while opposition to co-educational classes among all 500 single-sex school pupils amounted only to 29. All but five of those who were experiencing co-educational English teaching were strongly in favour of it. Whether this overwhelming preference derives from the educational rather than the social benefits enjoyed by our respondents we leave open.

There seems little point then in pursuing the argument whether the sexes should be segregated for the teaching of English literature: clearly, the pupils themselves would, if given any say in the matter, firmly resist segregation. Nevertheless, the whole survey indicates that teaching boys and girls together poses problems which are perhaps unique to English. For example, the sexes differ appreciably at this stage in their levels of maturity; they may respond very differently according to whether they are taught by a man or a woman; they also differ widely in their tastes, discriminations and preferences. More research is needed into these and other problems thrown up by the present inquiry before we can decide how English literature can best be presented to 16- and 18-year-olds. In our next article we propose to show what further light the present survey sheds upon some of these problems and, more particularly, to examine the sorts of books which 16- and 18-year-olds choose to read for their own pleasure.

References

Bateman, R. B. (1964). 'Adult books for 13- to 15-year-olds', *Use of English*, **XVI**, 2, 119-28.

Black, E. L. and Schofield, A. (1958). 'What do girls read?', *Times Educ. Suppl.*, **2247**, 986.

Bloom, B. S. *et al.* (1964). *Taxonomy of Educational Objectives, Handbook II: The Affective Domain.* London: Longmans.

Britton, J. N. (1954). 'Evidence of improvement in poetic judgement', *Brit. J. Psychol.*, **45**, 3, 196-208.

Butts, D. (1963). 'What do some boys and girls read and why?' *Use of English*, **XV**, 2, 87-90.

Dale, R. R. (1964). 'Research on comparative attainment in English in single-sex and co-educational schools', *Educ. Res.*, **VI**, 3, 170-8.

Harpin, W. S. (1966). 'The appreciation of prose', *Educ. Rev.*, **19**, 1, 13-22.

Inglis, F. (1969). *The Englishness of English Teaching.* London: Longmans.

Jenkinson, A. J. (1940). *What do Boys and Girls Read?* London: Methuen.

Lane, M. J. and Furness-Lane, K. A. (1967). *Books Girls Read.* London: Society of Young Publishers.

McElroy, W. M. (1965). 'Books for the over-fourteens', *Use of English*, **XVII**, 1, 25-37.

Mittins, W. H. (1966). 'The set books stakes', *Use of English*, **XVII**, 3, 208-12.

Paffard, M. K. (1962a). 'The teaching of English literature in secondary schools—I', *Educ. Res.*, **IV**, 3, 218-29.

Paffard, M. K. (1962b). 'The teaching of English literature in secondary schools—II', *Educ. Res.*, **V**, 1, 16-28.

Schools Council. (1965). *A Programme for Research and Development in English Teaching.* Working Paper No. 3. London: HM Stationery Office.

Scott, W. J. (1947). *Reading, Film and Radio Tastes of the High School Boys and Girls.* Council for Educational Research: New Zealand.

Smith, W. H. and Harrap, G. G. (1957). *A Survey of Boys' and Girls' Reading Habits.* London: Harrap.

Thouless, R. H. (1969). *Map of Educational Research.* NFER: Slough.

Trevelyan, G. M. (1944). *English Social History.* London: Longmans.

Tucker, M. (1968). '"Readers" or literature?' *Use of English*, **XIX**, 3, 207-13.

Valentine, C. M. (1962). *The Experimental Psychology of Beauty.* London: Methuen.

Whitehead, F. S. (1956). 'Attitudes of grammar school pupils towards some novel commonly read in schools', *Brit. J. Educ. Psychol.*, **XXVI**, 2, 104-11.

Yarlott, G. (1968). '"Aims" in teaching literature', *Educ. Rev.*, **20**, 2, 146-155.

THE EDUCATION OF DISADVANTAGED CHILDREN

An International Comparison

NORMAN WEIN *Didsbury College of Education*

THIS review of recent experiments in the education of disadvantaged children includes descriptions of activities in the United States, Israel, the People's Republic of China and Great Britain. Aims common to most of the early childhood programmes are skills concerned with language development, conceptual and perceptual development, delay of gratification, socialization, and auditory and visual discrimination. In the newer programmes there is an emphasis on parent involvement in the community and on the child's image of himself.

Today there are programmes in compensatory education in several countries, with programmes on pre-school education receiving the most attention. It is useful to know about the various curriculum innovations, research designs and evaluative techniques for demonstrating the effectiveness of such programmes.

The term 'compensatory education' has generally come to mean the programmes developed for the urban poor of society. Lately, the problem has been complicated by the influx of immigrant populations to city centres and the creation of ghetto districts. The children of the urban poor have been referred to, among many different terms, as 'educationally disadvantaged'. This has generally meant that these children have not received an equal opportunity to use the educational institutions to the same degree as other children in society. Due to the demands of an advancing technological world, it has become imperative that past trends be reversed and programmes instituted that will prepare children for the academic demands of a new society.

Research and experiment in the past have shown that the most advantageous time to influence the child academically is in the pre-school years. Jordan (1933) in the United States and Neff (1938) in England found that extreme poverty of environment led to progressive academic deterioration in children. Bloom (1964) found that a poor environment at crucial periods in the pre-school child's life might make it difficult to recover lost ground. Deutsch *et al.* (1967) has shown that the longer black, low socio-economic status children are in the regular school system, the more they experience a 'cumulative deficit' in their intelligence and achievement test scores.

M. Smilansky and S. Smilansky (1967) in Israel have outlined several reasons for the need for pre-school education in disadvantaged areas which have universal applicability. They are:

1. the most rapid change and growth occur in the pre-school years;

2. the pre-school time is the first period of development when the child moves from the shelter of the family system towards experience, familiarity, proficiency and identification with new and encompassing social systems. In this way the child becomes prepared for the setting of the school and is therefore on an equal footing with the advantaged child in adapting to the school atmosphere;

3. the gap between advantaged and disadvantaged children is still relatively limited at the pre-school level;

4. the child is still relatively confident and predisposed to new experiences, for he has experienced little or no failure;

5. the parents are better prepared to support the intellectual development of the pre-school child;

6. since education is a cumulative process, it is important to lay proper foundations for the development of mental abilities and attitudes;

7. the child can be introduced to the language and routine of the school;

8. in regard to immigrant children, it is easier for them to learn the norms of society by imitation in the pre-school years;

9. three- to five-year-olds are more immune to social pressures which prevent acceptance and integration.

United States programmes

Martin Deutsch

One of the first projects to incorporate these ideas into a research-action programme was begun in the Harlem area of New York in 1962 by Martin Deutsch. Initially, 60 four-year-old black children were selected to attend an enriched nursery environment. A matched control group was selected for age, sex, occupation of the main support of the family and educational attainment of the main support of the family. This group did not attend the nursery school, but entered the same schools the year after selection. Additional control groups were added later to see whether age of entry into school, whether they had had kindergarten experience or not, would have an effect on the child's performance.

The Board of Education of the City of New York supplied the classrooms with materials and equipment that would be in a normal nursery school as well as supplying and paying the teachers, who had all had five years' experience in infant schools. Deutsch added other materials and equipment and provided a teacher's aide for each class. The system of enriched curricula and two teachers in each classroom continued for the next five years until the children entered junior school, when they were exposed to normal classes and teachers.

Some of the innovations in the Deutsch programme were:

1. increased training for teachers;
2. greater participation by parents and the community in the schools;
3. emphasis on a positive self-image for the child;
4. stress on language and conceptual and perceptual development;
5. use of audio-visual aids (a listening centre and language masters) to encourage language development;
6. evaluation of the enriched curriculum on later school achievement.

All children were tested when they began the programme to see that there were no differences between experimental and control groups, and then retested at the end of each school year. Intelligence tests such as the Stanford-Binet and Peabody Picture Vocabulary Test as well as several achievement tests were used to assess the children's performance. Four successive groups of children in the programme attained, on average, a ten-point rise in IQ score compared with the control group. This gain has been maintained over a period of five years. The experimental group scored at grade level on the Gates' Vocabulary Reading Test and above grade level on the Metropolitan Achievement (Reading and Arithmetic), whereas the control group scored below grade average and significantly less than the experimental group.

Headstart

Faced with growing discontent among the urban poor, the United States government was encouraged by these hopeful findings to launch a nationwide pre-school programme for disadvantaged children in the summer of 1966. The Headstart programme reached about 550,000 children at a cost of about £45,000,000. In general, children attended a two- or three-month summer nursery school before they entered kindergarten or, where there was no such provision, the first class of the ordinary school districts in depressed areas were encouraged to set up classes in community centres, churches and schools. The curriculum stressed the following objectives which were:

1. to help children to learn to work and play independently in a school setting;
2. to learn to live effectively with other children, respecting each other's rights;
3. to develop a self-identity of competence and worth;

4. to have many opportunities to succeed physically, intellectually and socially;

5. to develop language skills, both listening and speaking;

6. to develop the curiosity to seek answers to questions;

7. to strengthen physical skills and co-ordination;

8. to express inner creativity through songs, painting and handicraft;

9. to involve parents in the school at meetings and on field trips.

Written into the design of the Headstart programme was a provision for the evaluation of each community programme. Valid evaluation was not always possible, however, because of inadequate control groups, inconsistent curricula from one community to another, and the lack of agreement between programme directors on evaluative techniques.

Coleman (1966) found that black children attending Headstart scored higher on verbal and non-verbal tests than those who did not attend. Victor and Coller (1967) found that children in one programme scored higher than controls on four measures of the Early Childhood Inventories, but scored significantly lower than children in the Deutsch programme on seven other ECI measures. Bouchard and Mackler (1967) compared 13 black Headstart children with 10 children from Maine, five of whom were children of blue collar workers with no nursery education and five of whom were children of military professionals with nursery education. Using the Goodenough Draw-a-Man Test, they found that at the end of one year of nursery, the drawings of the black children and the Maine children were very similar in the number of body parts included. However, body proportion and relationship of body parts were much superior with both groups of the Maine children as compared with the Headstarters.

Observers have reported that, as a group, the Headstart children can discuss, listen, sing and play together; they can finish one activity before going on to another, and their attention span has increased. At the beginning of the school year the children could hardly sit through the reading of one story; at the end of the year they would listen to three or four stories.

Coleman (1966) reported that after a year in the regular schools, differences between Headstart background versus no Headstart background in children's achievement test scores vanished. This is not necessarily an indication that Headstart has failed, but rather points out the need for long-term follow-up evaluations. It may be several years before the skills the children develop in nursery school are manifested in the children's achievement scores in the higher grades. It may also be necessary to continue an enriched curriculum into the primary classes in order to maintain the gains initially achieved. The national Headstart programme was originally planned to be thus extended, but has been curtailed because of lack of funds.

Susan Gray

Another experimental programme in pre-school education is that of Dr. Susan Gray (near Nashville, Tennessee). In the summer of 1962, 60 four-year-old black children were selected and divided into two experimental groups. The first group received three ten-week courses throughout the three following summers. The second group received two ten-week summer courses followed by a nine-month period of home visits before they entered primary school. Two control groups received no nursery education prior to entering school. Gray outlines two objectives in her programme:

1. development of positive attitudes towards achievement, which includes achievement motivation, persistence, delay of gratification, interest in school activities and identification with achieving rôle models;

2. development of aptitudes for achievement, which includes language, conceptual and perceptual development.

Each class had a teacher in charge and four demonstration assistants. Three were always in the classroom and one was present on a part-time basis. An attempt was made to provide one male assistant teacher for a male identification model. Each assistant was responsible for five children. To reinforce the learning situation the teachers were trained to reward the child physically, visually, verbally and materially whenever the child made an appropriate response. Sweets were offered and, to practice delay of gratification, the child was encouraged to save up his sweets to procure a toy or prize.

The children were evaluated using the Stanford-Binet, Peabody Picture Vocabulary Test, the Illinois Test of Psycho-linguistic Abilities and the Wechsler Intelligence Scale for Children. There were significant gains for the experimental group of children of from five to nine IQ points on the Standord-Binet test and similar gains on the other tests. The controls showed an average loss of four to seven points on the Stanford-Binet test, but registered some accelerated gains when they entered school. Using school achievement tests in 1965/66, the gains measured were not statistically significant, although they were still favouring the experimental children. At the time of writing Gray is undertaking a home intervention programme where mothers are trained to teach their children.

Samual Kirk

At the University of Illinois, Samuel Kirk is also doing work with mothers in the home environment. He has been developing a programme of sensory-motor, motor, and verbal integration with 30 children aged between eight months and two years who have four-year-old siblings in nursery school. The infants receive one hour of intellectual stimulation a day, five days per week. Movement, the development of a good self-concept, object manipulation, language, symbolic representation and socialization are some of the elements that are emphasized. The object of the experiment is to see whether infants with such training will exceed the levels of cognitive development attained by their older siblings at the onset of the study.

Carl Bereiter and Sigfried Engelmann

All the programmes so far described have in common an emphasis on perceptual and conceptual development, parent and community involvement, development of a self-image and a flexible use of the traditional nursery setting for the introduction of the new concepts. A programme that departs radically from this scheme is the pre-school programme for disadvantaged children developed by Bereiter and Engelmann. Their first experimental group receiving two years of enrichment before entering school, consisted of 15 black children coming from homes which contained older children who were identified by their teachers as problem children showing the effects of disadvantage. The second experimental group receiving only one year of pre-school enrichment consisted of 15 children, seven white and eight black, selected by regular Headstart criteria. In addition, two control groups were selected and matched for intelligence, socio-economic status and race, with one group receiving non-sequential instructional learning games and the other group receiving the normal nursery training. Both groups had the same amount of schooling and the same pupil to teacher ratio.

In this programme, the children in both experimental groups received directed lessons in language, reading and arithmetic every day. The 15 four-year-olds in each class were divided into three groups with each group moving from one room to another for the lessons, which lasted twenty minutes. There was a separate teacher for each subject, and the only equipment needed was chairs for the children and teacher, and a blackboard. Between classes juice was served, and then children went into the playground for free play activity.

Language and arithmetic training were carried out as if the children were learning another language. Using the pattern drill, the teacher would hold up a block and say 'This block is big', whereupon the children repeated the same statement in unison. For arithmetic, the teacher would say 'One plus nought equals one' and again the children repeated the statement.

After three months almost all the children had learned the names of colours and were judged to have mastered prepositions when they could respond correctly to such tasks as 'put the scissors in front of the box'. All but one child could count up to ten and most children could answer 'one plus one equals . . . ?' 'Two plus one equals . . . ?' up to 'None plus one equals . . . ?'

Observers in the classroom were impressed by the children's verbal responses in unison to such questions as 'What comes after one?' Everyone says, 'Two comes after one!' The teacher draws two lines on the board and says 'What happens as I make the top line longer?' All the children answer, 'The bottom line gets shorter!'

Using the Stanford-Binet intelligence test, a ten point rise in intelligence scores was reported for the experimental children. At the end of the kindergarten period the first experimental group scored a grade average of 2·6 on arithmetic and 1·5 on reading for the Wide Range Achievement Tests. These were normal grade average levels associated with completion of the first year. The second experimental group with only one year of enrichment averaged 1·1 to 1·2 on the same tests. The experimental groups scored significantly higher on all tests than the ordinary nursery control group.

A severe criticism of the Bereiter and Engelmann programme is that rote procedures are used and the children learn specific answers which are not applicable to new learning experiences. The amount of language stimuli is restricted to the same few verbs which are used over and over again. It can also be argued that the situation set up in the schoolroom does not reflect the child's real world. Outside school children can explore materials on their own and learn from interaction with their environment; they will not be simply repeating what a teacher says. It may well be that as the children grow older they will reject the rigid conformity imposed upon them. Creativity may be severely hampered, as the child is not free to build upon his own ideas in the patterned drill exercise.

Israel

Moshe and Sarah Smilansky

In Israel, M. and S. Smilansky have done a great deal of work in the pre-school period for disadvantaged children. In 1961 they reported that a group of low socio-economic status Israeli primary school children scored ten points lower on the Wechsler Intelligence Scale for Children than a similar group of high socio-economic status children. Some of the reasons given for this difference in performance were:

1. the vocabulary and concepts of the disadvantaged child are inadequate and he does not understand many of the things said to him at the kindergarten level;
2. insufficient use is made of play for study purposes;
3. the kindergarten fails to guide the child toward a variation of activities. The teacher should not stand aside passively but encourage the spirit to ask 'Why? How? What is it made of? How does it work';
4. there is no systematic inculcation of the habit of planning and developing action for the later school programme in the kindergarten;
5. the kindergarten daily programme is not constructed on a general scheme of units repeated day after day;
6. the relationship of freedom and order within the kindergarten is generally at odds with the relationship of the kindergarten to the child's home;
7. where some relationship exists between the kindergarten and home, this does not always help the teacher to understand the child. The home experiences are not used in the school and the relationship with the home is generally established on the basis of blame;
8. the pre-school teacher is not regarded as part of the whole education system and does not prepare the child for school entrance.

The Smilanskys have started a pre-school programme to remedy the disadvantage the low socio-economic status children face when they enter primary school by developing children's powers of perception (visual, auditory, sensory-motor co-ordination); the power to think of given developments in a story, arrange pictures in a logical sequence; vocabulary and linguistic ability; general knowledge and its active use (labelling, occupations of various people, knowledge of the time of day); numerical concepts; concepts of place and direction (over, under, beside, less, enough, etc.).

A unique aspect of this programme is the additional development of teacher training methods intended for use in disadvantaged areas. Initially six teachers will be involved and gradually a pool of 250 teachers will be utilized with classes matched for home background, teacher training and experience. At first, five-year-old children are to be involved, then three- and four-year-olds and finally two-year-olds. Their development of skills will be evaluated over a period of time. This ambitious programme will train teachers to:

1. expand the amount of information and

knowledge at the pre-school level that is related to what is to be taught in primary school;

2. promote good work habits;

3. develop and expand the child's vocabulary, concepts, perception, auditory ability, reading readiness, and writing skills;

4. develop socio-dramatic play;

5. develop ability to do independent work, participate and work with new materials, and accept criticism as a tool for better learning;

The Smilanskys have encountered three areas of obstruction in their programme that are worth mentioning. They are:

1. active resistance by teachers and administrators to any innovations that undermine their security and status;

2. difficulty in organizing new textbooks for use by teachers who are unprepared to work with disadvantaged children;

3. difficulty in adapting the research design to the workings of the municipal bureaucracies whose budgetary and administrative arrangements run counter to the aims of the programme.

The Peoples' Republic of China

Slow progress because of problems of this kind stands in sharp contrast to the Peoples' Republic of China, where in 1959 there were 3,690,000 nurseries providing for 67,000,000 children in the rural areas alone. The nursery programme here grew from the great need of parents who worked outside the home and had to leave their young children in someone's care. Today the nurseries are a common feature and are maintained by communes, factories, mines, government organizations, and neighbourhood groups. There is great overlap between the curricula taught for the three- to five-year-olds in the nursery and the four- to seven-year-olds in the kindergarten. Group games, handwork, singing, storytelling, community sightseeing and group activities are emphasized. An atmosphere of respect for the personal dignity and rights of the child is maintained. Unfortunately very little is known or available about evaluation or comparisons of children with or without nursery education in China. The figure of 67,000,000 children must indicate that there will soon be, if there is not already, universal pre-school education for virtually all Chinese children. It will be quite interesting to watch developments in China for the impact universal nursery education may have on the entire academic system.

Great Britain

In Britain the most recent experiment reported is that of Douglas and Ross in 1964. They took a sub-sample of 290 children selected from over 5,300 subjects in the National Survey. The children were separated into two groups, the first having nursery education and the second group not receiving any.

They found that at eight years of age, the group who had had nursery education scored slightly higher on tests of ability and performance, but by the age of fifteen they scored slightly lower than the non-nursery group. In neither case were the differences significant. This study does not really indicate the value of nursery education in future achievement for several reasons. The socio-economic background of the children was not controlled, so it was impossible to tell whether those from an impoverished background had made any significant gains. There was no description of the kind of nursery the children attended, so it was impossible to tell which of them had full- or part-time nursery experience, and whether the nursery was based on play care, loosely structured, or academically oriented. There were no controls for the number of teachers and aides involved or for their background experience within a classroom.

Other experiments carried out in England on early learning deficits have tended to be of a remedial nature and have not controlled socio-economic status as a major variable. Recently, because of the Newsom and Plowden reports, attention has been drawn to the need to have more and better programmes for educating the disadvantaged. In particular pre-school education has been singled out as having great potential for influencing the child's future attitudes for success in school. Several programmes have begun in England this year concentrating on pre-school education for the disadvantaged child.

The University College of Swansea is developing screening techniques to select children in need of

B

compensatory education. Their aim is to locate those aspects of the environment most debilitating to the children and then to conduct a longitudinal infant-school study to counteract the negative effects of disadvantage.

The National Foundation for Educational Research at Slough has started a pre-school programme for sixty disadvantaged children between the ages of three and five years. The children are being encouraged to express themselves, develop their powers of listening and observation, understand and develop a basis for reading, writing and arithmetic. Parent involvement is being actively sought after. The enrichment is being confined to two hours daily in ten- and twenty-minute periods.

Didsbury College of Education has planned a nursery and follow-up infant school programme in the educational priority areas of Manchester. Experimental and control groups involving some three hundred children will participate in a curriculum emphasizing oral language, conceptual and perceptual development. Two additional areas to be included which are believed to be of the utmost importance for the success of the programme are the child's self-image and parent and community involvement. As the experimental curriculum will be extended through the three years of infant school, there will be yearly evaluations to determine whether the children maintain any of their gains over a period of time.

One of the most widespread programmes in educational priority areas which has just been started is the *Oxford University programme* being supported by the Social Science Research Council. Five areas (Liverpool, Deptford, West Riding, Dundee and Birmingham) are to receive a total of £175,000 over a period of three years. Liverpool has begun to provide day-care provision where none existed. Dundee is now undertaking a pre-school enrichment programme involving 80 four-year-olds. The children will be divided into three groups, each receiving one of three types of enrichment from fifteen to thirty minutes a day. The first type is language development with emphasis on naming, following instructions, personal verbal interaction, and description. The second type is perceptual and conceptual development emphasizing discrimination of size, form, colour, number and time concepts. The third type is attitudes and social development, which will include some form of parental involvement. Each of the three areas will be evaluated to see whether one form of enrichment is superior to another. The other three national areas will be concerned with similar programmes.

It is difficult to criticize any of the English programmes since they are in the early stages. Perhaps in summarizing aspects of on-going programmes we can become clearer about the aims and directions future research might take in early childhood education.

Discussion

Since most of the experimental programmes involve small numbers of children, it would be immensely useful if the same kinds of evaluative techniques were used so that cross-comparisons could be made of programmes in different regions and countries.

From the experiments previously cited we have an array of tests such as the Stanford-Binet, WISC, Goodenough Draw-a-Man, Peabody Picture Vocabulary Test, Early Childhood Inventories, Gates Vocabulary Test, Metropolitan Achievement Tests, Wide Range Achievement Tests, etc. One reason why so many tests are used is to try to tap as many facets of the child's experience as possible. It is difficult to say exactly what part of the child is being enriched and no test measures the complete child. Hence, the Draw-a-Man Test is used for measuring the child's emotional life, the IQ tests for general intelligence and problem-solving, and the general achievement tests for content knowledge. The pitfall with most of these tests is that the children's scores are highly unreliable in early childhood. The fact that children's scores may drop in the first few years of school may only indicate some developmental adjustment. This is why it is very important to be able to test the children five, ten, or even more years after the programme is ended. The principles learned in pre-school may not be evident in the child's achievement scores until he is much older. Nor should we circumscribe the success of the pre-school programme by merely using those standardized tests as indicators. Figures that are of far greater use to society are the number of people who complete secondary school, the number of people who go on to college or graduate, juvenile delinquency rates, job attainment, earning capacity, etc. The experimental and control groups will always be there to measure once the pre-school programme has been initiated.

Common to most of the early childhood programmes is the need to develop what might be called 'school readiness skills'. Language development, conceptual and perceptual development, delay of gratification, socialization, auditory and visual discrimination are all skills which will familiarize the child with the school environment. Two elements that have recently appeared in many new programmes that might be termed 'familiarizing the school with the child's environment' are emphasis on the self-image and parent community involvement. Both of these elements demand that the school meets the child halfway, learning about the child's concept of himself, his family and community. It demands that the child's community is not looked upon as a deficit system, but rather as a place that has positive components that can be utilized as part of the child's learning process in the school. It demands that teachers and administrators learn about the people they are supposed to teach and that they rethink and reorganize the role the school is supposed to adopt in the community.

The problem facing all teachers and administrators who are concerned with pre-school programmes for disadvantaged children is lack of sufficient money. If we wish to improve the educational system nationally, the government must make a substantial contribution to these pre-school programmes, which would probably amount to several million pounds. The level of support in the United States for programmes such as Headstart makes this very clear, and even the American provision is far from comprehensive.

References

Bereiter, C. (1968). Chapter 9 in: Deutsch, M., Katz, I., and Jensen, A. *A Nonpsychological Approach to Early Compensatory Education in Social Development*. New York: Holt, Rinehart & Winston.

Bereiter, C. and Englemann, S. (1966). *Teaching Disadvantaged Children in the Pre-School*. New York: Prentice Hall.

Bereiter, C., Osborn, J., Engelman, S. and Reidford, P. (1965). *An Academically Oriented Pre-School for Culturally Deprived Children*. Paper presented at the Amer. Educ. Res. Assoc., Chicago.

Bloom, B. (1964). *Stability and Change in Human Characteristics*. New York: Wiley.

Bouchard, R. and Mackler, B. (1967). *A Pre-kindergarten Programme for Four-Year-Olds*. Occasional Paper: Centre for Urban Education, New York.

Coleman, J. (1966). *Equality of Educational Opportunity*. (The Coleman Report). US Office of Education OE—38001; Washington DC.

Department of Education and Science: Central Advisory Council for Education (England). 1967. *Children and their Primary Schools*. (Plowden Report). London: HM Stationery Office.

Deutsch, M. *et al.* (1967). *The Disadvantaged Child*. New York: Basic Books.

Deutsch, M. and Goldstein, L. (1965-68). *An Evaluation of the Effectiveness of an Enriched Curriculum in Overcoming the Consequences of Environmental Deprivation—Progress Reports*. Institute for Developmental Studies, New York Univ. (1 Jan. 1965–31 Aug. 1968) and United States Office of Educ. OE 5-10-045; Washington DC.

Deutsch, M., Katz, I. and Jensen, A., eds. (1968). *Social Class, Race and Psychological Development*. New York: Holt, Rinehart & Winston.

Douglas, J. and Ross, J. (1964). 'The later educational progress and emotional adjustment of children who went to nursery schools or classes', *Educ. Res.*, **7**, 1,73-80.

Feldman, S. (1964). 'A pre-school enrichment programme for disadvantaged children', *New Era*, **45**, 79-82.

Goldman, R. (1969). 'Reactions to Plowden's educational priority areas', *Educ. & Soc. Science*, **1**, 9-20.

Goldstein, L., Coller, A. and Victor, J. (1967). *Early Childhood Inventories Project Packet One for Pre-kindergarten and Kindergarten*. Institute for Developmental Studies, New York University.

Gray, S. and Klaus, R. (1965). 'An experimental programme for culturally deprived children', *Child Developm.*, **36**, 887-98.

Gray, S., Klaus, R., Miller, J. and Forrester, B. (1966). *Before First Grade*. New York: Teachers College Press.

Havinghurst, R. (1967). *Educational Disadvantage and Deprivation in the United States*. UNESCO Institute for Education, Hamburg.

Jordan, A. (1933). 'Parental occupations and children's intelligence sources', *J. Appl. Psychol.*, **17**, 103.

Kirk, S. (1966). 'Development of a programme of sensory-motor, verbal and motor integration with eight-month to two-year-old disadvantaged children in the home'. Research in progress. Institute for Research on Exceptional Children, University Illinois, Urbana, Ill.

Neff, W. (1938). 'Socio-economic status and intelligence', *Psychol. Bull.*, **35**, 727.

Newfield, J. (1968). 'Robert Kennedy's Bedford-Stuyvesant legacy', *New Yorker Magazine* (December).

Office of Economic Opportunity. (1965). *Project Headstart*. Pamphlets 1-9. Washington DC: OEO.

Powledge, F. (1967). *To Change a Child: A Report on the Institute for Developmental Studies*. Chicago, Ill.: Quadrangle books.

Smilansky, M. and Smilansky, S. (1967). *Intellectual Advancement of Culturally Disadvantaged Children*. UNESCO Institute for Education, Hamburg.

Smilansky, S. (1961). Section in: Smilansky, M. and Adar, L., eds. *Evaluation of Early Education in Kindergarten and Grades One and Two in Evaluating Educational Achievement*. UNESCO Institute of Education, Paris.

Tsang, C. (1968). *Society, Schools and Progress in China*. London: Pergamon Press.

Victor, J. and Coller, A. (1968). *Preliminary Report on the Use of Several Early Childhood Inventories for the Evaluation of Educational Programmes: Report 3A*. New York: Institute for Developmental Studies, New York University.

THE ROLE OF THE PRIMARY AND SECONDARY SCHOOL TEACHER

D. R. GIBSON *Cambridge Institute of Education*

THIS paper has attempted to answer empirically the question 'What images have students of the primary and secondary school teacher?' To this end, a role definition test (see Appendix) was given to 345 first-, second- and third-year women students in a college of education and to 68 non-student women. Significant differences were perceived, with the role of the primary teachers seen as more 'open' than that of the secondary teachers. Differences on items relating to the instrumental order of the school were very large for all groups and increased with length of training. Differences relating to the expressive order of the school were smaller but still significant and changed during training from favouring secondary pupils to favouring primary pupils. It is suggested that professional training and orientation effect these changes.

To speak of the teacher's role without reference to the teaching context is to forego a good deal of precision in any subsequent analysis. A major factor affecting the teaching role which has been largely neglected in empirical studies, possibly because it seems 'too obvious', is that of the age-range of the pupils. This factor is usually mentioned in the literature on the teacher's role, but rarely examined in detail. There is a lack of empirical evidence on differences between the role of the primary school teacher and the secondary school teacher, even though good studies of particular institutions exist (Blyth, 1965; Taylor, 1963; Stevens, 1960; Kalton, 1966). Hoyle (1969) expresses the common assumptions when he points out that teachers of younger children are more significantly concerned with their socializing function, teaching the fundamental skills of literacy and numeracy, transmitting a core of general knowledge, and encouraging pupils to acquire the *skills* of learning and to accept the *value* of learning. As the pupil grows older there is a much more obvious swing towards instruction and evaluation, and academic achievement emerges as a separate criterion of teachers' judgement of educational achievement, in contrast to the fusion of academic and social components into a single criterion of achievement for younger pupils (Parsons, 1961). The role of the teacher in secondary schools seems to become less diffuse and more that of a subject specialist, although there are significant exceptions to this trend, depending on the type of secondary school (Kob, 1965; Musgrove and Taylor, 1965).

Theoretical studies of the role of the teacher (Wilson, 1962; Hoyle, 1965; Westwood, 1967) could form a useful basis for analysing the role differences of teachers at varying levels in the educational structure. Such studies, however, remain to be undertaken. Biddle's major studies of the teacher's role (Biddle, 1961, 1966) focus upon differences in role-perception by the teacher and members of his role set, but do not take into account the age-range taught. Musgrove and Taylor (1965), and Kob (1965), provide evidence on how teachers view their own roles, but not the roles of their colleagues teaching different age groups.

Studies of British student teachers have not concerned themselves with differences in the role conceptions held for teachers in primary as opposed to secondary schools. Research has concentrated on one particular age level (Steele, 1958); or with a particular issue such as corporal punishment (Kissack, 1958); or with an examination of attitudes towards educational beliefs and practices, without specifying particular age levels (Butcher, 1965; Evans, 1967; Herbert and Turnbull, 1963; Dickson, 1965; McIntyre and Morrison, 1967; Finlayson and Cohen, 1967; Shipman, 1967). There is, in these studies, a general consensus that students preparing to teach younger children tend to hold a more liberal, child-centred view of the role than students preparing to teach older children, but there have been no investigations into the degree and nature of differences between primary and secondary teacher role conceptions.

An examination of American research reveals a similar neglect of age-range differences; the studies largely concentrate upon the effects on students' attitudes of short term educational experiences such as teaching practice or education theory courses (Brim, 1966; Cambell, 1967; Day, 1959; Dutton, 1962; Oelke, 1956; Ofschus, 1963; Rogers and Smith, 1956; Sandgren and Schmidt, 1956; Scott and Brinkley, 1960; Ward and Bailey, 1966). Further, all these American studies have used the Minnesota Teacher Attitude Inventory (Cook, Leeds and Callis, 1951), an instrument which purports to measure those attitudes of a teacher which predict how well he will get along with pupils. The MTAI does not specify the age level of the pupils involved, and its particular focus necessarily omits other large sectors of the teacher's role. It has been subject to a good deal of critical comment (Eson, 1956; Rossi, Yengo and Boyd, 1966; Tiegland, 1966; Rabinowitz, 1954; Giebenk, 1967), and has been critically reviewed in this country by Evans (1966).

Other American researches which have employed rather more sophisticated theoretical bases for their empirical investigations have similarly not included a consideration of age level differences (Walberg, 1968; Horowitz, 1968; Johnson, 1969; Hoy, 1967).

Teacher training is a process of professional socialization during which a student is expected to acquire values, attitudes and ways of behaving appropriate to his future qualified status. During this time students have the opportunity to observe and teach pupils of different ages and to watch qualified primary and secondary teachers in action. These experiences probably largely influence the student's conception of the role of the teacher with different age levels of pupils. No empirical evidence exists as to the nature of the process and the actual conceptions, so that a commentator on a reasonably comprehensive bibliography of recent research on the education of teachers was able to ask 'What images have students of the primary and secondary school teachers?' (Shipman, 1969). This paper attempts to provide some empirical data in answer to that question.

The test

A role definition test (see Appendix) consisting of 34 items relating to the role of the primary and secondary teacher was constructed by item-analysis from a larger pool. Reliability figures for the RDT, obtained with a group of 53 third-year college of education women students, were: split-half 0·76 (Spearman-Brown correction formula); test-retest (4 weeks) 0·78.

Half the questions in the role definition test related to the formal organizational structure of the school: curriculum, teaching methods, the composition of teaching groups and the role of the teacher in relation to other members of staff. These questions were therefore concerned with the transmission of skills and their attendant problems, and will be referred to as the 'instrumental order' of the school. The remaining questions were concerned with the affective atmosphere of the school, and with people rather than techniques. This group of questions related to the limits of authority, internal organization, school ritual and the transmission of belief and moral systems, and will be referred to as the 'expressive order' of the school. (Lambert, 1966; Bernstein, 1966a, 1966b). Responses were made on a Likert-type scale and were classified as 'open' or 'closed' according to the degree of flexibility or rigidity permitted in role behaviour, the range of alternatives available to role-incumbents, and the degree of active versus passive involvement in the educational situation of members of the role set.

The sample

The sample consisted of 345 women students at a college of education. 124 first-years completed

Table 1: Number of items failing to differentiate between the roles of primary and secondary school teachers (out of possible 17)

		Students		
	Non-Students	*First-Year*	*Second-Year*	*Third-Year*
Instrumental	6	4	3	0
Expressive	6	5	6	8

the RDT on the first day of their course, 101 second-years and 120 third-years at the end of their course. In addition 68 women aged between 18 and 23, not in higher education but matched for educational achievements, also completed the RDT.

Results

Primary school pupils and teachers seemed to enjoy greater flexibility in their social organization, a wider range of alternatives in curriculum and method, and more active involvement in what was taught. They were more concerned than the secondary school teacher with the child's whole personality, less subject to school ritual, and interpreted more freely the expressive and instrumental orders of the school seeing a greater interpenetration of these two orders. They were also more concerned to break down barriers between school and neighbourhood. However, both the non-student group and the first-year students saw secondary teachers as being slightly more 'open' in the expressive order than primary teachers (differences significant at the 0·05 level), while second- and third-year students saw the primary teacher's role here as more open (differences significant at the 0·001 level). Differences relating to the instrumental order were numerically much larger than those relating to the expressive order. The nature of this increasing tendency during training to see differences between the roles in instrumental terms may be gathered from Table 1. Matters of curriculum and cognitive learning were seen as more important role-differentiating factors than matters of personality, relationships or transmission of attitudes and beliefs.

All students perceived significant role differences on approximately 75 per cent of the items. Non-students saw fewer differences between the roles, 65 per cent of the items showing significant differences between secondary and primary means.

Table 2 shows that during her time in college the student perceives only a slight increase in the number of significant differences between the two roles, but the role of the primary school teacher is increasingly seen as more 'open' than that of the secondary teacher.

An examination of the items in the RDT reveals interesting patterns of differences in the relative role conceptions of the groups. These have been classified in Table 3 into items on which all groups agree, items which show students differing from non-students, and items which appear to show the effect of teacher training.

Discussion

It is clear that the greatest differences between primary and secondary teachers' roles occur in behaviour related to the instrumental order of the

Table 2: Significant differences perceived between the roles of primary and secondary school teachers on RDT of 34 items

		Students		
	Non-Students	*First-Year*	*Second-Year*	*Third-Year*
Number of Differences	22	25	25	26
Primary Means Greater Than Secondary	15	16	20	23
Secondary Means Greater Than Primary	7	9	5	3

Note: 85 per cent of differences are significant at the 0·01 per cent level or better.

Table 3: Perception of differences between the roles of primary and secondary school teachers by three student-teacher groups and one non-student group

	RDT ITEM NUMBER
Agreement Between All Four Groups	
a. Primary role seen as more ‘open’ than secondary role	Instr. 1, 6, 7, 9, 11, 13, 18, 31, 33 Expr. 2, 12, 28
b. Secondary role seen as more ‘open’ than primary role	Instr. None Expr. 30
c. Little or no differences between primary and secondary roles	Instr. None Expr. 17, 24, 34, 32
All Student Groups Differ From Non-student Group	
a. Little or no difference seen by non-student group, large difference seen by all students	Instr. 3, 5, 29 Expr. None
b. Large difference seen by non-students, little or no difference by students	Instr. None Expr. 21
The Effect of Training	
a. Role differences emerge during training	Instr. 4, 15, 19, 22 Expr. 26, 27, 10
b. Differences are seen by non-students and first year students, but these differences decline during training	Instr. 14 (reversal) Expr. 8, 23, 25, 16

school. All groups feel that the primary school teacher should be less of a subject teacher, more an arranger of classroom environment, less concerned to stream pupils by ability, more concerned with breadth than depth in the curriculum, more likely to praise pupils’ work, and freer to make up his own syllabuses than the secondary teacher. He should also have a good knowledge of the methods and principles of teaching rather than of one subject. He is thus seen as more of an ‘all-rounder’, albeit at a shallower level, than his secondary colleagues, with more freedom to experiment in curriculum and method.

In the expressive order there is general agreement that the primary school teacher should be more concerned to act as a sort of substitute parent than the secondary teacher. Also, he should be less concerned about insisting upon the pupils wearing school uniform and should not allow more privilege to older than to younger pupils in contrast to his secondary colleagues. It is suggested that these results may be partly explained in terms of the need for recognition and independence of the adolescent, and that these needs were clearly seen by the sample groups, their own adolescence not far behind them.

The only item upon which it was agreed by all groups that secondary teachers should be more ‘open’ than primary teachers was No. 30: ‘A teacher should invite visitors into the school from outside to talk to the pupils about their (the visitors’) work, interests etc.’ All groups agreed this should happen in both types of school, but felt more strongly in agreement with the proposition for secondary teachers. The implication could be that the relevance of the adult world for the adolescent is clearly seen by all groups.

On only two items, 32 and 34, were all groups agreed in seeing no significant differences between the two roles. These items related to corporal punishment and to the question of treating all pupils alike in rewarding and punishing. Whether a teacher should be allowed to use corporal punishment or not was viewed with a good deal of uncertainty by all groups, but there were significant differences (at the 0·01 level) between the mean scores of non-student and student groups, non-students being more inclined to favour corporal punishment. Two further items, 17 and 24, show few (at the 0·05 level of significance) or no differences in the roles, and relate to the teacher taking an active part in the life of the local community, and to a teacher’s out-of-school activities, largely connected with youth work or sport. All four items relate to the expressive order of the school, and it is worth recording again that as students progressed through their course the number of significant differences perceived between primary and secondary teacher roles increased in the instrumental order and decreased in the expressive (see Table 1).

In terms of the RDT, this suggests that students, during their three years of training, come to feel that both primary and secondary children should be allowed to act at times upon what the teacher thinks are wrong decisions on their part, whereas at the start of their course they were much more inclined, like non-students, to favour secondary pupils in this respect. Further, they come to disagree more with the idea that both primary and secondary pupils should be taught to obey orders at once, having previously felt more inclined to insist on this for the younger pupils. The need for a teacher to operate some scheme of marks or stars for the award of a cup, badge, privilege etc., originally seen as a much more important procedure for a primary school teacher, is deemed as much less vital by the third year of the teacher training course, and on a level with this requirement for secondary school teachers. Finally, sex education comes to be seen to be as important for the primary pupil as it is for the secondary pupil.

During the period of training certain items (4, 15, 19, 22, 26, 27, 10) suggest that students come to see differences in the two roles, which, at the commencement of their course, and in the non-student group, they did not think existed. They became less inclined to favour comparison of children's work as a means of motivation in the primary school, more inclined to favour 'family grouping' for younger pupils, and more in favour of integration of subjects in the primary school. In the expressive order, initial non-differences give way to slight differences (significant at 0·05 level) in the third year, towards being rather more in favour of controlling the out-of-school dress and behaviour of secondary pupils, and being slightly more in favour of visiting the homes of primary school pupils. A slight initial difference (0·05) in favour of teachers visiting the homes of primary school pupils becomes much more pronounced (difference significant at the 0·001 level) by the third year.

The difference in the roles is seen increasingly in task-centred, rather than person-centred, criteria. Professional training fosters discrimination in role-awareness, the role-socialization process making the student more keenly perceptive of the instrumental differences in the teacher's role when teaching different age-groups. This finding would accord with that of Kitchen (1966), and has a strong relationship to Burnham's statement of the need for emphasis on role expectations rather than on personality expectations in colleges of education (Burnham, 1969). Further, the effect of training, it is suggested, is to increase awareness of, and feeling for, the pupil as a person, blurring the effects of age differences in pupil-teacher relationships. A further explanation is that the college studied in the survey enjoys a high reputation for the quality of its primary teacher preparation, and places great stress upon the nature of the affective relationships. It is suggested that the stress on individual differences and the concern for the individual pupil fostered in this college is then applied by students to all age levels.

A final group of items (3, 5, 29, 21) differentiated the student groups from the non-student group in their perception of differences in the roles. Non-students saw it as much more important (difference significant at the 0·01 level) for primary teachers to have a good knowledge of child development. Students did not differentiate between teachers in their need for this knowledge. Further, on the three items in the instrumental order (3, 5, 29), non-students saw little or no difference between age groups, whereas all students felt more in favour of co-education in the primary school than in the secondary school, were more inclined to favour a variety of topics going on at the same time in primary than secondary classrooms, and felt that teachers of younger children should allow them to choose their working partners more readily than teachers of older children. These last two items appear to show the already existing professional orientation of the student group.

This paper has dealt with perceived differences in the role of the primary school and secondary school teachers. It has not discussed the level of mean scores of the groups, or differences between the sample groups. Clear differences in mean scores emerged on a majority of the items between student and non-student samples and between age-range groups of students, and will be discussed in a future article. In general, students became more 'open' in their role conceptions as the course proceeded, and non-students tended to be significantly more 'closed' in their responses than students. It should be also remembered that within the factor of age-grouping other social factors operate: for example, Musgrove and Taylor (1965) report that primary teachers in middle class areas have a more restricted view of their role than primary teachers in working class areas.

Appendix

Role Definition Test

1. A teacher's MAIN responsibility should be to teach subjects (English, Maths, Music, History etc.).

2. A teacher's MAIN responsibility should be to act as a sort of 'substitute parent' to the pupils in the class.

3. Boys and girls are best taught separately.

4. A teacher should use the comparison of one child's work with that of another as a method of motivation.

5. A teacher should try to ensure that in her classroom pupils are working on the same subject or topic.

6. A teacher should make up her own syllabus of what she will teach.

7. A teacher should group children by ability, putting 'slow learners' with 'slow-learners' for academic subjects.

8. A teacher should allow pupils at times to act upon what she thinks are wrong decisions on their part.

9. A teacher should know HOW to teach, i.e. a good knowledge of the methods and principles of teaching, rather than having a very good knowledge of one particular subject.

10. A teacher should be prepared to visit parents in their homes.

11. A teacher's task is mainly to arrange the classroom environment then stand back to let the pupils learn from their surroundings.

12. A teacher should insist on all pupils wearing school uniform.

13. A teacher should prefer her pupils to acquire a broad understanding of a number of subjects rather than a detailed knowledge of one or two subjects.

14. A teacher should mark ALL the work done by the pupils in her class.

15. A teacher is most effective in a class where all the pupils are about the same age.

16. A teacher should, in her classroom, operate some scheme of marks, stars etc. for the award of a cup, badge, privilege etc.

17. A teacher should take an active part in the life of the local community (by joining a local club, organization etc.).

18. 'Education in breadth is preferable to education in depth'.

19. A teacher should keep her subject separate and distinct in the pupils' minds from other subjects taught in school.

20. A teacher should allow pupils to discover 'right' and 'wrong' (behaviour and attitudes) for themselves.

21. A teacher should have a good knowledge of child development.

22. A teacher should regularly publish a list of marks showing the rank order of her pupils.

23. A teacher should teach pupils to obey orders at once and without question.

24. A teacher's out of school activities should be largely connected with youth work, sport etc.

25. A teacher should be prepared to give sex instruction.

26. A teacher should attempt to control pupils' dress and behaviour out of school.

27. A teacher should encourage parents to visit the school.

28. A teacher should allow older pupils more privileges than younger.

29. A teacher should allow pupils to choose other children with whom they wish to work in class.

30. A teacher should invite visitors into the school from outside to talk to the pupils about their (the visitors') work, interests etc.

31. A teacher should praise pupils' work frequently.

32. A teacher should treat all pupils alike in rewarding and punishing.

33. A teacher should be able to teach a number of subjects quite well.

34. A teacher should be allowed to use corporal punishment.

References

Bernstein, B. B., Elvin, H. L. and Peters, R. S. (1966). 'Ritual in education', *Philosoph. Trans. Royal Society of London,* **13**, 429-36.

Bernstein, B. B. (1966). 'Sources of consensus and disaffection in education', *J. Assoc. Assist. Mistresses,* **17**, 1, 4-10.

Biddle, B. J., Rosencranz, H. A. and Rankin, E. F. (1961). *General Characteristics of the Teacher's Role.* Vol. II of 'Studies in the Role of the Public School Teacher'. Columbia, Miss.: Univ. of Missouri Social Sciences Laboratory.

Biddle, B. J., Rosencranz, H. A., Tomich, E. and Twyman, J. P. (1966). 'Shared inaccuracies in the role of the teacher'. In: Biddle, B. J. and Thomas, E. J. (eds.). *Role Theory Concepts and Research.* New York: Wiley.

Blyth, W. A. L. (1965). *English Primary Education: A Sociological Description.* London: Routledge and Kegan Paul.

Brim, B. J. (1966). 'Attitude changes in teacher education students', *J. Educ. Res.,* **59**, 10, 441-5.

Burnham, P. S. (1969). Commentary on the role of the teacher in advanced society. In: Colston Institute. *Towards a Policy for the Education of Teachers.* London: Butterworths.

Butcher, H. J. (1965). 'The attitudes of student teachers to education', *Brit. J. Educ. Psychol.,* **4**, 1, 17-24.

Cambell, D. E. (1967). 'Dimensional attitude changes of student teachers', *J. Educ. Res.,* **61**, 4, 160-2.

Cook, W. W., Leeds, C. H. and Callis, R. (1951). *Manual of the Minnesota Teacher Attitude Inventory.* New York: Psychol. Corp.

Day, H. P. (1959). 'Attitude changes of beginning teachers after initial teaching experience', *J. Teacher Educ.,* **10**, 326-8.

Dickson, G. E. (1965). *The Characteristics of Teacher Education Students in the British Isles and the United States.* Univ. of Toledo Co-operative Project No. 2518.

Dutton, W. H. (1962). 'Attitude change of elementary school student teachers and anxiety', *J. Educ. Res.,* **55**, 8, 380-2.

Evans, K. M. (1966). 'The Minnesota Teacher Attitude Inventory', *Educ. Res.,* **8**, 2, 134-41.

Evans, K. M. (1967). 'Teacher training courses and students' personal qualities', *Educ. Res.,* **10**, 1, 72-7.

Eson, M. S. (1956). 'The Minnesota Teacher Attitude Inventory in evaluating the teaching of educational psychology', *J. Educ. Psychol.,* **47**, 271-8.

Finlayson, D. S. and Cohen, L. (1967). 'The teacher's role: a comparative study of college of education students and head teachers', *Brit. J. Educ. Psychol.,* **37**, 1, 22-81.

Giebenk, J. W. (1967). 'A failure of the MTAI to relate to teacher behaviour', *J. Teacher Educ.,* **18**, 2, 283-9.

Herbert, N. and Turnbull, G. H. (1963). 'Personality factors and effective progress in teaching', *Educ. Res.,* **16**, 24-81.

Horowitz, M. (1968). 'Student teaching experiences and attitudes of student teachers', *J. Teacher Educ.,* **19**, 3, 319-24.

Hoy, W. K. (1967). 'Organizational socialization: the student teacher and pupil control idealogy', *J. Educ. Res.,* **61**, 4, 153-4.

Hoyle, E. (1965). 'Organizational analysis on the field of education', *Educ. Res.,* **7**, 2, 97-114.

Hoyle, E. (1969). *The Role of the Teacher.* London: Routledge & Kegan Paul.

Johnson, J. S. (1969). 'Changes in student-teacher dogmatism', *J. Educ. Res.,* **62**, 224-6.

Kalton, G. (1966). *The Public Schools: A Factual Survey.* London: Longmans.

Kissack, M. (1956). 'The attitude of training college students towards corporal punishment'. Unpublished MEd thesis, University of Manchester.

Kitchen, R. D. (1966). 'Measuring students' attitudes', *Educ. for Teaching,* **71**, 75-9.

Kob, J. (1965). Definitions of the teacher's role. In: Halsey, A. H. *et al.* eds. (1965). *Education, Economy and Society.* New York: Free Press.

Lambert, R. (1966). Introduction to Kalton, G. (1966). Op. cit.

McIntyre, D and Morrison, A. (1967). 'The educational opinions of teachers in training', *Brit. J. Soc. & Clin. Psychol.,* **6**, 1, 32-7.

Musgrove, F. and Taylor, P. H. (1965). 'Teachers' and parents' conceptions of the teachers' role', *Brit. J. Educ. Psychol.,* **35**, 2, 171-8.

Oelke, M. C. (1950). 'A study of student teachers attitudes towards children', *J. Educ. Psychol.,* **47**, 193-8.

Ofschus, L. T. and Gnagey, W. J. (1963). 'Factors related to the shift of professional attitudes of students in teacher training', *J. Educ. Psychol.,* **54**, 3, 149-53.

Parsons, T. (1961). 'The school class as a social system: some of its functions in American society'. In: Halsey, A. H., Floud, J. and Anderson, C. A. eds. (1961). *Education, Economy and Society.* New York: Free Press.

Rabinowitz, R. (1954). 'The fakeability of the Minnesota Teacher Attitude Inventory', *Educ. & Psychol. Measmt.,* **14**, 657-64.

Rogers, V. R. and Smith, J. A. (1956). 'Professional attitudes of students in an intensive teacher-training programme', *Elem. School J.,* **57**, 2, 100-1.

Rossi, P., Vengo, C. and Boyd, W. (1966). 'A comparison of methodology on the fakeability of the MTAI, *J. Educ. Res.,* **49**, 673-80.

Sandgren, D. L. and Schmidt, L. G. (1956). 'Does practice teaching change attitudes towards teaching?' *J. Educ. Res.,* **49**, 673-80.

Scott, O. and Brinkley, S. G. (1960). 'Attitude changes of student teachers and the validity of the Minnesota Teacher Attitude Inventory', *J. Educ. Psychol.,* **51**, 2, 78-81.

Shipman, M. D. (1967). 'Theory and practice in the education of teachers', *Educ. Res.,* **9**, 3, 208-12.

Shipman, M. D. (1969). Commentary on recent research on the education of teachers. In: Colston Institute. (1969). *Towards a policy for the Education of Children.* London: Butterworths.

STEELE, P. M. (1968). 'Change in attitude amongst training college students towards education in junior schools'. Unpublished MEd thesis, University of Manchester.

TAYLOR, W. (1963). *The Secondary Modern School*. London: Faber.

TIEGRAND, J. J. (1966). 'The relationship between measured teacher attitude change and certain personality characteristics', *J. Educ. Res.*, **60**, 2, 84-5.

WALBERG, H. J., METZNER, S., TODD, R. M. and HENRY, P. H. (1968). 'Effects of tutoring and practice teaching on self-concept and attitudes in education students'. *J. Teacher Educ.*, **19**, 3, 283-91.

WARD, P. and BAILEY, J. A. (1966). 'Community participation and attitudinal changes among teacher education students', *Personn. & Guid. J.*, **44**, 6, 628-9.

WESTWOOD, L. J. (1967). 'The role of the teacher—I', *Educ. Res.*, **9**, 2, 122-34.

WESTWOOD, L. J. (1967). 'The role of the teacher—II', *Educ. Res.*, **10**, 1, 21-37.

WILSON, B. R. (1962). 'The teacher's role', *Brit. J. Sociol.*, **13**, 1, 15-32.

CSE—GRADES AND TEACHERS' FORECASTS

D. J. W. SOWELL *formerly of the East Midland Regional Examinations Board*

THE purpose of this research was to ascertain with what measure of agreement CSE grades were interpreted in one of the fourteen CSE examining boards during the first three years of the examination. A study was made of teachers' forecasts as against actual gradings in eight subjects in 1965 and 1967. This showed no general improvement in the accuracy of forecasts over the period. Counting near-misses, more than three-quarters of the forecasts were correct. There was a tendency to be optimistic rather than pessimistic in forecasting. There was, however, an improvement in the forecasting of the top grade,except in the case of French, where there was a deterioration. The general level of forecast accuracy was about 40 per cent, which was similar to levels in two comparable studies.

The introduction of the CSE in 1965 was a fundamental step in the development of examinations in the secondary school. The examination was new in its approach, and revolutionary in its promotion of teacher control. The success of any examination depends on the readiness with which teachers and others accept, understand and use the results. The CSE system rests on two reference grades from which the standards of the other grades are, in the terms of the seventh report of the Secondary School Examinations Council, to be inferred and described with reasonable accuracy. The main reference point, grade 4, is to denote the performance of candidates of average ability—average over the whole range, not merely the CSE pupils. Teachers are to formulate a collective judgement as to the standard of achievement which in their view denotes the successful completion of a five year course of study by pupils who are about average in ability. This notion of 'average pupil', 'average performance' and 'average ability' was new, and was to be left to the collective views of teachers.

The other reference grade, the upper grade, was identified in terms of the already well established GCE: grade 1 in CSE was to be awarded to a candidate whose ability was such that he might reasonably have secured a pass in the Ordinary level of the GCE examination had he applied himself to a course of study leading to that examination. The other grades, 2, 3 and 5 were to be inferred after grade 1 and 4 candidates had been identified. Only five to ten per cent of candidates were to be ungraded. This paper presents the results of research into the way these grades have been interpreted in the area of one of the fourteen CSE examining boards during the first three years of the examination.

There was some reason for anticipating that grade 1 standards would be the more easily identified because of their relation to GCE. There was much less likelihood that grade 4 standards would be readily discernible: grade 4 was a rather nebulous concept. Where was the band of average pupils to be located in the ordinary three-stream secondary modern school?

A monitoring experiment conducted by the NFER (Skurnik and Hall, 1966) showed that the nine boards who operated for the first time in 1965 had interpreted grade 1 in a satisfactory manner. On grade 4, the boards' results and the forecasts provided by schools in the sample were much in agreement. The real importance of the experiment was that the nine boards had similar standards for grade 1 and grade 4 awards in 1965. This paper analyses how far teachers' forecasts in one board's area corresponded to the actual grades awarded in 1965 and 1967.

Each year, subject teachers were asked to forecast their pupils' results as 1, 2, 3, 4, 5 or 'U' (ungraded), but the forecast was not used in deciding the final grade. Very little is known of the philosophy behind teachers' forecasts. How objective are their estimates? How accurate could they have been expected to be in the novel CSE situation? To what extent are the forecasts affected by the use that the teachers suspect the board may make them? Altogether, the possibility of forecasting grades successfully in 1965 was likely to have been vitiated by all sorts of imponderables:

(i) optimistic estimates by a teacher who felt that these might aid borderline candidates;

(ii) pessimistic estimates by a teacher who preferred a psychological lift when results were announced;

(iii) poor results because of an ill-judged or unlucky programme of pre-examination revision;

(iv) inexperience of judging examination calibre as against classroom performance;

(v) the general unreliability of all human subjective assessments;

(vi) the unfamiliarity of the new certificate with its new concept of standards;

(vii) the unknown factor of the effect of course work elements upon the results.

The situation offered a unique opportunity to discover how quickly teachers could put a meaning to new grades, and to measure any improvement in the teachers' understanding of the board's standards. A study was made of forecasts in 1965 and 1967. Eight major subjects were used, giving a good coverage of the mainstream of activities in the schools.

Table 1: Percentage of marks awarded internally by schools

Biology	20%	
English	50%	
French	30%	
History	30%	(Optional)
Homecraft	70%	
Mathematics	40%	(Optional)
Metalwork	55%	
Technical Drawing	—	

Each analysis took the form of a grid showing forecast grades against actual grades. An example is given in Table 2.

The main questions we wanted to answer were:

(a) How did mean grades of forecasts compare with actual mean grades?

(b) What percentage of forecasts were correct, or nearly correct in 1965 and 1967?

(c) What evidence is there that teachers' appreciation of the standards required for awards of grade one and grade four improved during 1965-1967?

(d) How did forecasts in the region compare with the accuracy of those of another CSE board and with an earlier analysis of forecasts for 'A' level results by a GCE Board?

(a) Mean grades

For the purposes of calculation, an ungraded result was treated as grade 6. In each case the statistics apply to the full samples for the subjects.

In seven subjects out of eight, teachers' forecasts turned out to be generous on a mean grade basis. This amounted to as much as 0·48 of a grade in technical drawing. In French the mean grades were quite close. The average forecast mean grades in all eight subjects was 2·92 against an average of actual mean grades of 3·16 (approximately a quarter-grade difference). Clearly the general trend in 1965 was to be optimistic about candidates' standards of attainment. A Mann-Whitney test of significance showed that the differences were significant at $p<0{\cdot}03$ level, and were unlikely to have risen by chance.

If teachers had learnt anything from their experiences in 1965 and 1966, a closing of the gap between forecast and actual grades could be expected in 1967, provided that standards for grades remained constant. The equivalent figures for 1967 are shown in Table 4.

Once again there were seven subjects where the forecast grades were seen to be generous. In six cases the gap between forecast and actual mean grades had narrowed. The average of forecast mean grades was 2·93 compared with that for actual means of 3·10 (a difference of 0·17 of a grade).

Table 2: Comparison of forecast and actual grades in English

	1965				1967			
	Forecast Number	%	*Actual Number*	%	*Forecast Number*	%	*Actual Number*	%
Grade 1	123	17·4	70	9·9	146	15·3	143	15·0
Grade 2	139	19·6	162	22·9	196	20·5	188	19·7
Grade 3	206	29·1	157	22·2	287	30·1	211	22·1
Grade 4	149	21·0	254	35·9	227	23·8	307	32·2
Grade 5	67	9·5	54	7·6	85	8·9	78	8·2
Ungraded	24	3·4	11	1·5	13	1·4	27	2·8
	Sample—708 candidates (1 in 2)				Sample—954 candidates (1 in 5)			

Table 3: Mean grades—forecast and actual for 1965

SUBJECT	FORECASTS	ACTUAL RESULT	COMMENT ON FORECAST	SAMPLE SIZE
Biology	2·86	3·27	0·41 generous	473
English	2·96	3·13	0·17 generous	708
French	3·32	3·27	0·05 pessimistic	835
History	2·99	3·27	0·28 generous	852
Homecraft	2·68	2·95	0·27 generous	244
Mathematics	3·08	3·27	0·19 generous	938
Metalwork	2·76	2·92	0·16 generous	402
Technical Drawing	2·70	3·18	0·48 generous	889

Table 4: Mean grades—forecast and actual for 1967

SUBJECT	FORECAST	ACTUAL	COMMENT	SAMPLE
Biology	3·04	3·62	0·58 generous	570
English	2·94	3·07	0·13 generous	954
French	2·96	3·20	0·24 generous	962
History	3·09	3·18	0·09 generous	947
Homecraft	2·67	2·68	0·01 generous	619
Mathematics	3·11	3·13	0·02 generous	762
Metalwork	2·81	2·78	0·03 pessimistic	518
Technical drawing	2·78	3·12	0·34 generous	668

Table 5: Proportions of accurate forecasts

	1965			1967		
	Sample Size	*Number Correct*	%	*Sample Size*	*Number Correct*	%
Biology	473	152	32·2	570	189	33·2
English	708	291	41·1	954	421	44·1
French	835	362	43·4	562	321	41·0
History	852	363	42·6	947	395	41·8
Homecraft	244	103	42·2	619	326	52·6
Mathematics	938	389	41·5	762	318	41·7
Metalwork	402	185	46·0	518	235	45·3
Technical drawing	889	297	33·4	668	235	35·2
Totals	5,341	2,142	40·1	5,600	2,350	42·0

Table 6: Forecasts correct to within one grade

	1965			1967		
	Sample	*Forecast Within One Grade*	%	*Sample*	*Forecast Within One Grade*	%
Biology	473	377	79·8	570	443	77·7
English	708	626	88·5	954	871	91·3
French	835	743	89·0	562	478	85·0
History	852	730	85·7	947	822	86·9
Homecraft	244	228	93·4	619	602	97·2
Mathematics	938	797	85·0	762	632	82·9
Metalwork	402	377	93·8	518	470	90·7
Technical drawing	889	679	76·4	668	529	79·2
Totals	5,341	4,557	85·5	5,600	4,847	86·5

(b) Accuracy of forecasts

The use of mean grades has the disadvantage that it can hide compensatory factors. A better method of comparing accuracy of forecasts is to look at the percentage of cases in which the forecasts proved accurate.

In the case of French, for example, the number of accurate forecasts in 1965 was 362, which represented 43·4 per cent of the total in the sample (835). Similar analyses were made of all the subjects surveyed, and the results were tabulated for 1965 and 1967.

From the figures in Table 5 we can see that there was no clear and obvious improvement in the accuracy of the forecasts in all subjects between 1965 and 1967. The accuracy of all forecasts in 1965 was 40·1 per cent; the accuracy in 1967 was 42·0 per cent. This apparent slight improvement arose largely from the increase in accuracy in Homecraft (without Homecraft the figures would have been 40 per cent in 1965 and 40·6 per cent in 1967). On the other hand there was a marked stability in history, mathematics, metalwork, biology and technical drawing over the two years, the last two subjects being particularly low in both years. A Mann-Whitney test showed that the differences between the two years were not significant (p=0·399).

In view of the roughness of the grading and the novelty of the grade standards, it was felt that the near-miss forecast should also be examined. To expect absolute accuracy in the circumstances was unreasonable. Table 6 shows what proportion of forecasts were correct to within one grade.

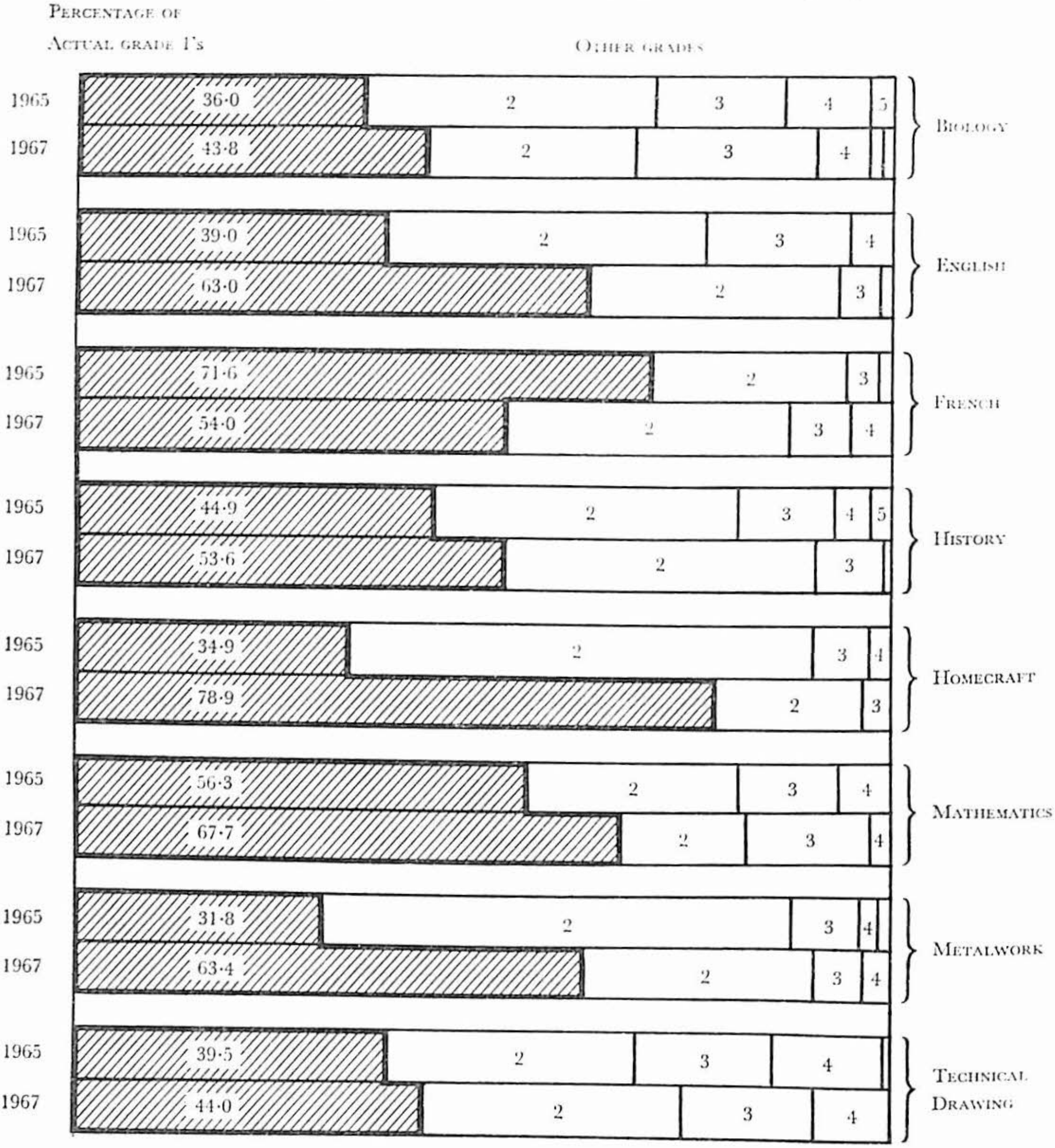
These figures indicate a high degree of accuracy, particularly during 1965. To find that in all the eight subjects more than three-quarters of the forecasts were correct or only one grade in error was to reveal a very sound assessment of pupils' abilities by subject teachers and a surprisingly rapid comprehension of the meanings of grades. While the figures were everywhere high, the slight improvement in overall accuracy between 1965 and 1967 was not significant. (Mann-Whitney p=0·439.)

Teachers' optimism as a possible distorting factor has already been noted. This can be illustrated by showing the distribution of forecasts according to their optimism or pessimism, as in Table 7.

Table 7: 'Optimistic' and 'pessimistic' forecasts (eight subjects combined)

	% PESSIMISTIC				% CORRECT	% OPTIMISTIC				
Grades:	*4*	*3*	*2*	*1*	*0*	*1*	*2*	*3*	*4*	*5*
1965	0·0	0·3	3·4	18·5	40·3	27·7	7·8	1·8	0·2	0·0
1967	0·04	0·4	3·7	19·2	41·9	25·3	7·6	1·8	0·1	0·03

Figure 1: Actual grades awarded to candidates forecast to get grade 1



The distributions are very similar for the two years and indicate a tendency to be optimistic. There was no significant improvement in the case of wild forecasts (those greater than one grade in error).

(c) Forecast of grade 1 and grade 4

The success of the examination depends to a large extent upon the recognition of the standards represented by the two reference grades. It was essential that the teachers should themselves know what those standards were. Recognition of grade 1 standards should have been easier as they were supposed to be the same as a pass at 'O' level. One method of investigating was to examine the grades actually awarded to those candidates forecast to gain grade 1, and see if the accuracy of the forecasts had improved between 1965 and 1967. The findings are shown in Figure 1.

In seven of the eight subjects there was an improvement in the percentage of candidates correctly forecast to gain a grade 1. In most cases the improvement was marked. In French, however, there was a marked deterioration in accuracy. The general improvement over all subjects taken together was significant (Mann-Whitney $p=0{\cdot}025$) and very encouraging.

Chi-square tests on the eight subjects individually revealed that the improvements in English, homecraft and metalwork were highly significant ($\chi^2=0{\cdot}001$), but that the other changes, except for the deterioration in French, were not statistically significant. The statistics showed no general improvement in the ability of teachers to forecast grade 4 standards.

(d) Comparison with the other research into forecasts

The data arising from this investigation were compared with similar information from two other sources. These were, firstly, another CSE board which provided assessments of their candidates for 1967; and, secondly, a GCE board which had published statistics of forecasts at 'A' level for candidates in 1963. The respective figures are shown in tables 8, 9, 10 and 11.

In each of the four cases the correlation ratio

Table 8: Forecasts and actual results of GCE 'A' level grades in 1963 (one board)†

	ACTUAL RESULTS					
School Estimates	*A/B*	*C/B*	*E*	*'O'*	*'F'*	*Total*
60	422	183	44	11	2	662
59-50	144	239	158	84	10	635
49-40	44	132	176	213	86	651
39-30	3	13	44	56	64	180
30	0	1	3	16	45	65
Totals	613	568	425	380	207	2,193

†A/B, C/D and E are passing grades, 'O' an ordinary pass and 'F' a fail.

Table 9: Forecasts and actual results for other CSE board in 1967

	ACTUAL GRADES						
School Forecast	*1*	*2*	*3*	*4*	*5*	*U*	*Total*
1	819	703	268	81	25	6	1,902
2	500	1,227	928	437	91	26	3,209
3	224	1,023	1,336	1,138	326	89	4,136
4	63	397	862	1,392	711	267	3,692
5	10	54	189	589	551	371	1,764
U	0	6	12	40	101	121	280
Totals	1,616	3,410	3,595	3,677	1,805	880	14,983

Table 10: Forecasts and actual results in 1965 (local board)

	ACTUAL GRADES						
Forecasts	*1*	*2*	*3*	*4*	*5*	*U*	*Totals*
1	389	303	112	62	8	0	874
2	175	447	358	173	27	3	1,183
3	51	324	484	452	103	23	1,437
4	6	73	259	552	196	56	1,142
5	0	11	40	194	180	102	527
U	0	0	4	32	52	90	178
Totals	621	1,158	1,257	1,465	566	274	5,341

Table 11: Forecasts and actual results in 1967 (local board)

	Actual Grades						
Forecasts	*1*	*2*	*3*	*4*	*5*	*U*	*Totals*
1	511	234	85	30	1	1	862
2	245	513	305	172	30	7	1,272
3	56	342	531	512	98	33	1,572
4	7	87	255	556	257	59	1,221
5	1	12	50	106	192	106	567
U	0	1	4	19	32	47	103
Totals	820	1,189	1,230	1,495	610	253	5,597

(eta) for coarsely graded distributions was calculated (see Table 12).

Table 12: Comparison of correlation ratios

	'A' Level 1963	Other CSE Board 1967	Local CSE Board 1965	Local CSE Board 1967
Value of Eta	0·679	0·620	0·698	0·690

The values of the correlations are similar and, in view of the different bases of the forecast results for CSE and 'A' levels, they are probably as close as could be expected. Correlation ratios hide the particularly wide differences between forecast and actual grades which sometimes occur in individual candidates. These anomalies arise from uneven performances on the part of candidates, the different attitudes of teachers towards forecasts, and the limitations of sampling procedure generally. Forecasts of CSE grades seem to be easier than 'A' level, as the use of objective questions, structured essays and the incorporation of course work marks probably produce more reliable and more teacher-involved results. The examination and its grades are new, however. It should be stressed that because two measures of a candidate disagree, it does not automatically follow that one is right and the other wrong. The judgements of the examiner and of the teacher may both be perfectly valid—their difference arising from the different criteria they have used or the different weightings they have ascribed to parts of a composite assessment. Candidates themselves may perform better or worse on different occasions. It is dangerous, therefore, to attempt to draw firm conclusions from such data: neither examinations nor teachers' assessments are absolutely reliable and valid.

The forecast accuracy of the four sets of data were also compared.

Two things emerge clearly from the data in

Table 13: Comparison of accuracy of forecasts

Board	Number of Correct Forecasts	%	Number of Optimistic Forecasts	%	Number of Pessimistic Forecasts	%
'A' Level	938	42·8	855	39·0	400	18·2
Other CSE Board	5,446	36·4	5,467	36·5	4,070	27·1
Local Board—1965	2,142	40·0	1,978	37·1	1,221	22·9
Local Board—1967	2,350	42·0	1,930	34·5	1,317	23·5

Table 13: firstly, there was a roughly similar level of accurate forecasting, at about 40 per cent; secondly, where teachers forecast incorrectly they tended to be optimistic. The overall ratio of optimistic forecasts to pessimistic forecasts was 1·46 to 1. For every 100 children, 39 were likely to have been forecast correctly, 36 optimistically, and 25 pessimistically.

The evidence for the CSE in 1965 and 1967 was very similar to that of the 1964 'A' level report. The accuracy of the forecasts is not high. Furthermore, there were considerable individual differences for candidates, probably arising from teachers' inability to estimate the performance of their own pupils. Not all anomalies can be accounted for by vacillation on the part of candidates—as the marked tendency for teachers to forecast optimistically suggests. Finally, experience of an examination does not appear to have added to the accuracy of teachers' forecasts.

Teachers' forecasts are in essence subjective, and the foregoing data are limited. Nevertheless the findings permit the following conclusions for one CSE board in 1965-1967:

(a) a significant optimism on the part of teachers when forecasts were considered on a mean grade basis;

(b) a general level of forecast accuracy of about 40 to 42 per cent;

(c) a significant improvement in the ability of teachers to forecast success at grade one level;

(d) no evidence of a growing appreciation of grade 4 standards;

(e) a marked similarity with the level of forecast accuracy in two other studies.

References

JOINT MATRICULATION BOARD. (1964). *School Estimates and Examinations Results Compared.* Manchester: JMB.

SECONDARY SCHOOLS EXAMINATIONS COUNCIL. (1963). *Scope and Standards of the CSE.* London: H.M. Stationery Office.

SCHOOLS COUNCIL. (1966). *The 1965 CSE Monitoring Experiment.* London: H.M. Stationery Office.

SIEGAL, S. (1956). *Non-parametric Statistics for the Behavioural Sciences.* Maidenhead: McGraw-Hill.

WISEMAN, S. (1966). *Correlation Methods.* Manchester: Manchester University Press.

OCCUPATIONAL CHOICE AND ATTAINMENT OF ESN SCHOOL-LEAVERS

M. O. A. DUROJAIYE *University of Ibadan*

THE author has compared groups of educationally sub-normal adolescents in special schools with others in special classes in ordinary schools, with regard to their choices of jobs and actual later employment. Among other related findings, it transpired that many ESN pupils made realistic choices of occupation as well as did the normal pupils, and were more stable in their jobs than the normal pupils.

Many local education authorities in England have two forms of provision for educating pupils who have been ascertained as educationally subnormal. These pupils can either be educated in special classes at ordinary schools or in special schools.

The aim of this research was to examine the effect of the similar ability grouping of special schools and the mixed ability grouping of ordinary schools with special classes on the occupational choice and the occupational attainment of the pupils. The problem inspires the following questions: (1) What differences, if any, are there between the occupational choice of ESN pupils in special schools and those of ESN pupils in special classes of ordinary schools? (2) Are there any significant differences between the occupational choices of ESN pupils in ordinary schools and those of their non-ESN school-mates? (3) What is the relationship between the occupational choice and the occupational attainment of ESN pupils? (4) Does this relationship differ according to the educational setting of ESN pupils? (5) Are ESN pupils in each educational setting different from non-ESN pupils in the relationship between occupational choice and occupational attainment? (6) When pupils from special schools for ESN, and from ordinary schools leave for the world of work, how stable are they in their occupation? (7) Are there any differences in their degree of satisfaction at work?

Relevant literature

Historically, the occupational situation of the subnormal has improved tremendously. It is no longer chargeable that 'there are numbers of mentally defective persons whose training is neglected, over whom no sufficient control is exercised, and whose wayward and irresponsible lives are productive of crime and misery'. (A Royal Commission Report on the Care and Control of the Feeble-minded.) Neither can the subnormal be regarded as 'never capable of self-support or of managing their own affairs' (Fernald, 1912).

One of the earliest studies that changed this depressing image of the subnormal is that of Anderson and Fearing (1923). They followed up 198 feeble-minded persons who had left school for a period of one to six years. The report found that approximately half were employed at the time of the investigation and a quarter had held jobs for one year or longer. Also, the Wood Report of 1929 on adult defectives in England and Wales was heart-warming and reflected an optimistic view on the question of the occupational adjustment of subnormal people with IQs of 50 to 70. The report stated that 34·1 per cent of all defective adults could be classified as capable of engaging in such skilled occupations as shoemaking and repairing, tailoring and dressmaking, french polishing, weaving, domestic service, ploughing and dairy work. Another 30·7 per cent were considered as capable of engaging in semi-skilled work, chiefly simpler processes in the various trades. Eighteen per cent were considered capable of unskilled work in a laundry. A further 9·5 per cent were able to scrub and polish floors and do very simple unskilled jobs, and only 7·7 per cent were regarded as unemployable. Thus 13 out of every 14 of the mentally retarded were considered capable of work of some sort under suitable conditions. Other studies, notably by Baller (1936), Charles (1935), and Bobroff (1956) that were carried out in America also gave evidence in support of the fact that subnormal school leavers were usually employed, were found to be self-supporting and had made satisfactory industrial adjustment to their various occupations.

The shortage of labour during the Second World War led to many subnormal people being employed both in industrial and in the Armed Forces where they made valuable contributions. With the publication of studies carried out by a few research workers including Holt (1943), and McKeon (1946), the image of the subnormal person as a predatory criminal began to look more like a caricature and less like a portrait.

By 1956, in England, the full impact of the 1944 Education Act, which provided for the special education of ESN pupils, had been established and investigators began to judge its effectiveness in the area of employability of ESN school-leavers. Thus Maxted (1956), Callman and Newlyn (1956), Robertson (1958), and Collins and Speake (1959), carried out studies from which they concluded that ESN school-leavers achieved overall satisfactory adjustment at work and were largely considered successful.

All these studies confirm the views expressed by Doll (1941), among others, that whereas 15 per cent of the population can be classified as intellectually subnormal only two per cent may be regarded as incapable of social and occupational adjustment.

It is not an easy task to determine within the subnormal ability range what sort of occupations are suitable. Attempts have been made by Burt *et al.* (1926) to relate intelligence level to occupational stability. However, the statement that for those with IQs of 50 to 70 'the simplest routine work and occasional employment in purely mechanical tasks under supervision is considered suitable' does not appear to be generally applicable and may no longer be reliable. Empirical evidence on the sort of jobs ESN children at school aspire to and hold as young workers is useful, and some of this evidence is presented in this study.

The present study

One hundred and eighty pupils participated in this study. They included 60 pupils from special schools for ESN pupils, 60 pupils from special classes for ESN pupils in ordinary schools and 60 pupils who were non-ESN children in secondary modern schools. There were 30 boys and 30 girls in each of the three groups, making 90 girls and 90 boys in all. The 'special schools for the ESN' group was drawn from six special schools. The 'special classes for the ESN in ordinary schools' group was drawn from six secondary modern schools. The non-ESN group was drawn from ten ordinary schools. All the schools were selected from two large local education authorities in the north of England. There were 90 children from each local authority.

Characteristics of the Children in the Study

The following conditions were satisfied by all the pupils selected for this study:

1. At the beginning of the study, every child was aged between 13 years nine months and 14 years nine months.

2. All three groups of children had parents who came from low socio-economic backgrounds as determined by the occupational status of the breadwinner (father and/or mother) using the Hall-Jones scale (1950). The parents all came from the semi-skilled or unskilled, or long-term unemployed group.

3. Every child satisfied the criterion of personality stability as measured by the Gobson Spiral Maze and personal history.

4. The two ESN groups were comparable in intelligence quotients as measured by the Wechsler Intelligence Scale for Children. Their full scale IQs were between 50 and 75. The non-ESN group had IQs between 80 and 105 (full scale WISC).

5. The two ESN groups were backward by at least two and a half years in reading and arith-

Table 1: Percentage of school-leavers in the three groups making some categories of occupational choice

ORDER OF CHOICE	CATEGORY OF OCCUPATIONAL CHOICE	ESN PUPILS IN SPECIAL SCHOOL *N* = 60		ESN PUPILS IN ORDINARY SCHOOL *N* = 60		NON-ESN PUPILS IN ORDINARY SCHOOL *N* = 60	
		Boy	Girl	Boy	Girl	Boy	Girl
1st	Professional	0·0	0·0	6·7	20·0	10·0	26·7
2nd		0·0	0·0	6·7	20·0	13·3	26·7
3rd		0·0	0·0	3·3	13·3	16·7	26·7
1st	Non-Manual Skilled	6·7	16·7	23·3	26·7	26·6	33·3
2nd		3·3	13·3	30·0	26·7	26·6	33·3
3rd		6·7	13·3	26·7	30·0	33·3	33·3
1st	Non-Manual Unskilled	26·7	20·0	20·0	6·7	3·3	6·7
2nd		16·7	23·3	16·7	6·7	13·3	3·3
3rd		23·3	20·0	6·7	3·3	10·0	3·3
1st	Manual Skilled	33·3	30·0	26·7	33·3	40·0	16·7
2nd		43·3	30·0	30·0	33·3	33·3	16·7
3rd		26·7	33·3	43·3	33·4	36·7	20·0
1st	Manual Unskilled	26·7	16·7	10·0	3·3	6·7	3·3
2nd		20·0	20·0	6·6	6·7	6·7	3·3
3rd		36·7	16·7	13·3	6·7	0·0	0·0
1st	Domestic and Agricultural Labour	6·7	16·6	13·3	10·0	13·3	13·3
2nd		16·6	13·4	10·0	6·6	6·7	16·7
3rd		6·7	16·7	6·7	13·3	3·3	16·7

metic attainment, as measured by Burt's Graded Reading Tests and the Wechsler Arithmetic Subscale. The children in the control group, on the other hand, were not more than one year ahead or behind their chronological ages in their attainment in reading and arithmetic as measured by the same tests.

6. The social age equivalent of each child in the ESN groups as measured by the Vineland Social Maturity Scale was at most two years behind the chronological age of the same child, the equivalent social age of the non-ESN group was at least equal to the chronological age of these children.

7. The medical records of each pupil selected did not reveal physical or medical inadequacies.

Procedure

Eighteen months before the children were due to leave school, they were invited to choose three jobs they would like to have after leaving school. Each child was interviewed individually. Children were also asked about the jobs they would not like to do and the reasons for their liking or not liking the jobs they mentioned. The questions put to the children sought to discover the factors in the home, the school or the community which might have influenced their choice of occupation. Their interests, aptitudes and hobbies, as well as part-time occupations were also explored. Each interviewee was tape-recorded and later analysed. Three months before the pupils' school-leaving dates, a short form of the interview was repeated. This included the occupational choices and the reasons for making them.

The interview method used was the 'non-schedule standardized interview', in which the questions were worded in a way that was appropriate for each respondent so as to ensure as far as possible that a similar meaning was conveyed to all subjects. The interviewer worked with a list of information required from the subjects. No rigid sequence of questions was followed. The most effective sequence was determined by each subject's readiness and willingness to take up a topic as it came up and according to the direction and logic of the responses. Apart from making sure that all the areas of information were covered, obvious disturbance was avoided by a relaxed, unforced manner, and by the atmosphere of free conversation in which the interviews were held.

Each of the 180 pupils was told that the investigator would very much appreciate his or her co-operation in the follow-up study. They gave the addresses of their prospective employers where these were known or promised to do so as soon as they were known.

Each pupil was given six stamped addressed envelopes with letter forms with which they were to inform the investigator of any changes in their home and/or employment addresses. Six months after their school-leaving dates all but eight school-leavers had informed the investigator of his or her home address as well as the exact job at which he or she was then employed.

Twelve to 18 months after their leaving school, 120 of the original 180 young people were traced and followed up. Information was obtained about frequency of job changes, types of jobs that were subsequently obtained and the ex-pupils' satisfaction or frustration at work. Twenty boys and 20 girls from each of the three groups were followed up.

Results of the investigation

(i) Stability of Occupational Choice

The occupational choices made by pupils eighteen months before they left school did not differ in any significant respect from those they made three months before their school leaving dates. Fifty-five of the 60 ESN pupils in special schools, or 91·7 per cent, gave the same category of occupational choice at the second as they did at first research interview. Similarly, 51 of the 60 ESN pupils in ordinary schools, or 85 per cent, and 57 of the 60 non-ESN pupils, or 95 per cent, showed stability in their occupational choice. The differences between the three groups are not statistically significant.

Secondly, Table 1 shows that little difference exists between pupils' first, second and third occupational choices. There are, however, seven instances where about 10 per cent of difference may be noted. Four of these occur in the occupational choice category of ESN boys in special schools, and in particular between the choices made in the non-manual unskilled, manual skilled, manual unskilled and domestic/agricultural labour categories.

Table 2: Comparison of categories of occupational choice made by school leavers (girls)

ORDER OF CHOICE	CATEGORY OF OCCUPATIONAL CHOICE	(a) ESN GIRLS IN SPECIAL SCHOOL	(b) ESN GIRLS IN ORDINARY SCHOOL	(c) NON-ESN GIRLS IN ORDINARY SCHOOL
1st	Manual versus Non-Manual	19 11	14 16	10 20
		(χ^2 at p = 0·05: a *v* b = NS; a *v* c = 4·271; b *v* c = NS)		
	Skilled versus Unskilled	14 16	24 6	23 7
		(χ^2 at p = 0·05: a *v* b = 5·813; a *v* c = 4·512; b *v* c = NS)		
2nd	Manual versus Non-Manual	19 11	4 16	11 19
		(χ^2 at p = 0·05: a *v* b = NS; a *v* c = NS; b *v* c = NS)		
	Skilled versus Unskilled	13 17	24 6	23 7
		(χ^2 at p = 0·05: a *v* b = 7·051; a *v* c = 5·625; b *v* c = NS)		
3rd	Manual versus Non-Manual	20 10	16 14	11 19
		(χ^2 at p = 0·05: a *v* b = NS; a *v* c = 4·271; b *v* c = NS)		
	Skilled versus Unskilled	14 16	23 7	24 6
		(χ^2 at p = 0·05: a *v* b = 4·512; a *v* c = 5·813; b *v* c = NS)		

Table 3: Comparison of categories of occupational choice made by school leavers (boys)

ORDER OF CHOICE	CATEGORY OF OCCUPATIONAL CHOICE	(a) ESN BOYS IN SPECIAL SCHOOL	(b) ESN BOYS IN ORDINARY SCHOOL	(c) NON-ESN BOYS IN ORDINARY SCHOOL
1st	Manual versus	20	15	18
	Non-Manual	10	15	12
		(χ^2 at $p = 0{\cdot}05$: a v b = NS; a v c = NS; b v c = NS)		
	Skilled versus	12	19	23
	Unskilled	18	11	7
		(χ^2 at $p = 0{\cdot}05$: a v b = NS; a v c = 6·857; b v c = NS)		
2nd	Manual versus	24	14	14
	Non-Manual	6	16	16
		(χ^2 at $p = 0{\cdot}05$: a v b = 5·813; a v c = 5·813; b v c = NS)		
	Skilled versus	14	20	22
	Unskilled	16	10	8
		(χ^2 at $p = 0{\cdot}05$: a v b = NS; a v c = NS; b v c = NS)		
3rd	Manual versus	21	19	12
	Non-Manual	9	11	18
		(χ^2 at $p = 0{\cdot}05$: a v b = NS; a v c = 4·310; b v c = NS)		
	Skilled versus	13	22	26
	Unskilled	17	8	4
		(χ^2 at $p = 0{\cdot}05$: a v b = 4·389; a v c = 10·549; b v c = NS)		

Finally, when the averages of the final research occupational choices were compared with choices made at the interview pupils had with youth employment officers, high percentages of agreement of 95, 97 and 94 per cent were obtained for the special school ESN group, the ordinary school ESN group and the non-ESN group of children, respectively.

The stability of category of occupational choice is reported, but there is also a high degree of consistency in the actual choice made. Children often referred to the same jobs at the second research interview as at the first, and also at the youth employment office interview. It is not known to what extent the research interviews had affected the youth employment officers' interviews. The general impression is that both the research and youth employment officers' interviews came well after the pupils had made a choice. This is borne out by the percentage of pupils who obtained the type of occupation they chose. In addition, children appeared to be influenced in their choices by factors which were well established before the interviews were held.

(ii) *Differences in the Occupational Choices of the Three Groups*

Fewer boys and girls from the special schools for ESN pupils chose occupations in the non-manual skilled category than boys and girls from ordinary schools, whether they were educationally subnormal or not. There appears to be a tendency for more pupils from special schools to choose jobs in the manual unskilled category.

Pupils' occupational choices were regrouped further into manual and non-manual on the one hand, and also into skilled and unskilled on the other. Chi-square tests reveal significant differences between the ESN girls in special schools and the ESN girls in ordinary schools in the three skilled versus unskilled comparisons but not in any of the three manual versus non-manual comparisons. Table 2 shows that chi-square values vary between 4·512 and 7·051 at $p = 0{\cdot}05$ in cases where significant results were recorded.

Special school ESN girls differed even more markedly from the ordinary school non-ESN girls in that more of them chose occupations in the manual category and fewer of them in the skilled category than the non-ESN girls. On the other hand, no significant difference emerged in the comparisons between ESN girls in ordinary schools and non-ESN girls. Chi-square values failed to reach the level of significance at p=0·05 in both the manual/non-manual and skilled/unskilled dichotomies.

The data for boys are less decisive in the two ESN groups: chi-square reached significance only twice (see Table 3). The tendency for special school ESN boys to choose manual and unskilled categories of occupation is noticeable. Special school ESN boys differ more noticeably from non-ESN boys in their choice of manual and unskilled categories of occupation. Chi-square value reached the level of significance in four of the six test, varying between 4·310 and 10·549. Again, no significant difference is observed when the two ordinary school groups of boys are compared either in the manual versus non-manual or skilled versus unskilled categories.

These results show that the ESN boys and girls in ordinary schools made occupational choices similar to their non-ESN school-mates. But the special school ESN boys and girls tended to make lower categories of choice than the ordinary school ESN pupils, and much lower categories of choice than the non-ESN pupils.

(iii) *Agreement Between Occupational Attainment and Occupational Choice*

When school-leavers' occupational attainments were compared with the averages of the occupational choices they made during the research interviews, remarkable agreement was noticed for each of the three groups of boys and girls. A noteworthy though insignificant exception to this statement occurs in the case of the ESN boys in ordinary schools. An average of six per cent chose occupations in the professional category, although none of them succeeded in obtaining such a level of occupation.

Table 4 shows that there are only two instances where more than five per cent difference can be observed between occupational choice and attainment. One occurs in the case of ESN girls from special schools where, although 31 per cent chose the skilled manual category of occupation, only 25 per cent attained it. The other is seen in the data for the non-ESN girls, where 16 per cent chose

Table 4: Percentage comparison between the categories of jobs chosen† and jobs obtained by the three groups of school leavers

CATEGORIES OF OCCUPATIONAL CHOICE	SEX OF PUPILS	ESN FROM SPECIAL SCHOOLS		ESN FROM ORDINARY SCHOOLS		NON-ESN FROM ORDINARY SCHOOLS	
		Chosen	*Got*	*Chosen*	*Got*	*Chosen*	*Got*
Professional	Boy	0·0	0·0	6·0	0·0	13·0	13·0
	Girl	0·0	0·0	18·0	16·0	27·0	27·0
Non-Manual Skilled	Boy	6·0	6·0	27·0	30·0	29·0	33·0
	Girl	14·0	13·0	28·0	27·0	33·0	30·0
Non-Manual Unskilled	Boy	22·0	20·0	14·0	16·0	9·0	10·0
	Girl	21·0	20·0	6·0	6·0	4·0	7·0
Manual Skilled	Boy	34·0	30·0	33·0	34·0	37·0	34·0
	Girl	31·0	23·0	33·0	30·0	18·0	20·0
Manual Unskilled	Boy	28·0	27·0	10·0	9·0	4·0	3·0
	Girl	18·0	20·0	5·0	6·0	2·0	6·0
Agricultural and Domestic	Boy	10·0	10·0	10·0	8·0	8·0	7·0
	Girl	16·0	13·0	10·0	8·0	16·0	10·0
Unemployed	Boy		6·0		3·0		
	Girl		10·0		7·0		

†Average of the three choices of occupation. Percentages of children have been rounded off to the nearest whole number.

Table 5: Percentage of ex-pupils with different levels of stability and satisfaction at work

	Ex-Pupils ESN from Special Schools		Ex-Pupils ESN from Ordinary Schools		Ex-Pupils Non-ESN from Ordinary Schools	
	Boy	*Girl*	*Boy*	*Girl*	*Boy*	*Girl*
1. *Job Changes*						
(a) No change	55	45	40	45	35	25
(b) Changed once or twice	45	40	50	40	30	30
(c) Changed thrice or more	0	15	10	15	35	45
2. *Frustration Expressed*						
(a) About one or two aspects of the job	90	75	45	40	35	15
(b) About three to five aspects of the job	5	25	30	30	20	25
(c) About more than five aspects of the job	5	0	25	30	45	60
3. *Satisfaction Expressed*						
(a) Unqualified	60	55	55	40	35	30
(b) Qualified	35	35	30	45	40	30
(c) Dissatisfied	5	10	15	15	25	40

agricultural and domestic service types of occupation but only 10 per cent actually obtained employment in that field. These two cases underline the frequent impression obtained during the research from individual interviews that ESN girls in ordinary schools tend to over-estimate their occupational chances while non-ESN girls appear to underestimate theirs.

(iv) *Stability and Satisfaction at Work*

The two ESN groups were found to be more stable and more satisfied at work than the non-ESN group (see Table 5). More boys and girls from special schools for the ESN changed their jobs less often and expressed fewer frustrations about their job situations than boys and girls from ordinary schools whether they were ESN or not. However, a greater proportion of the non-ESN ex-pupils of ordinary schools changed their jobs three times or more in 12–18 months and complained more about various aspects of their job situations than their ESN ex-school mates.

Girls were found to change jobs more often and to complain more about their jobs than boys. As it must be expected, there is a large amount of agreement between frequency of job complaints and frequency of job changes. Similarly, there is a high correlation between stability and satisfaction at work.

Discussion

From the results presented above it can be concluded that many ESN pupils in special schools and in special classes of ordinary schools can make choices of occupation as well as non-ESN pupils. Low intelligence did not appear to have influenced their choice. On the other hand, the ESN pupils on the whole made suitable choices in relation to occupational availability (Wilson, 1952), since they largely obtained the type of occupation they chose.

As far as the differences in the category of occupational choice of the two groups of ESN pupils are concerned, explanations may be sought in the nature of experience of the two groups. The mixed ability setting of the ordinary school ESN group may have resulted in raising the level of their occupational choice. ESN pupils in ordinary schools appeared to have been influenced by the occupational aspirations of their non-ESN schoolmates. Similarly, the homogeneous ability setting of the special schools may have resulted in limiting the pupils' occupational choices to the observed levels. In this context, Sewell and Orenstein (1965) have suggested that where young people are in daily contact with people of high socio-economic status, they are constantly receiving a flow of information about such people and come to take them as role-models. The same may be true of pupils who are in constant contact with other pupils of higher intellectual abilities, higher socio-economic status and higher occupational aspirations. The converse is also probably true.

Results also show that there is a large amount of agreement between pupils' occupational choice and their occupational attainment. This can be discussed under two headings. First, the availability of the types of occupation pupils wanted. Secondly, the pupils' mental preparedness for the occupations of their choice.

The gradual development of attitude for occupational aspiration over a period provided for these pupils an opportunity for mental role rehearsal of the given occupations, resulting in their fulfilment of these roles when they come to take up the jobs. This has been described by Musgrave (1967) as anticipatory socialization. This expectation develops self-confidence in the pupils and gives them positive attitudes towards their chosen jobs, which, in the case of the ESN pupils from ordinary schools, would appear to have softened the harsh effects of low intelligence.

Occupational choice and occupational attainment of these pupils may be seen in the context of their school environment. The climate of opinion (Jahoda, 1952) about job choices would appear to permeate all parts of the different schools where children of school-leaving age are found.

References

ANDERSON, V. V. and FEARING, F. M. (1923). 'A study in the careers of 321 feeble-minded persons', *Ment. Hygiene.*

BALLER, W. R. (1936). 'A study of the present social status of a group of adults, who when they were in elementary schools were classified as mentally deficient', *Genet. Psychol. Monogr.*, **18**, 165-244.

BOBROFF, A. (1956). 'Economic adjustment of 121 adults formerly in classes for mental retardates', *Amer. J. Ment. Defic.*, **60**, 525-35.

BURT, C. *et al.* (1926). *A Study in Vocational Guidance*. IRHB pamphlet, XXXIII.

CHARLES, D. C. (1953). 'Ability and accomplishment of persons earlier judged mentally deficient', *Genet. Psychol. Monogr.*, **47**, 3-71.

COLLINS, J. E. and SPEAKE, J. G. (1959). 'Success in employment of ESN children', *Med. Off.*, **2671**, 167-71.

COLLMAN, R. D. and NEWLYN, D. (1956). 'Employment success of educationally subnormal ex-pupils in England', *Amer. J. Ment. Defic.*, **60**, 133.

DOLL, E. A. (1941). 'The essentials of an inclusive concept of mental deficiency', *Amer. J. Ment. Defic.*, **46**, 214-9.

FERNALD, W. E. (1912). '*The burden of feeble-mindedness*', *Boston Med. & Surg. J.*, **166**, 911-5.

HALL, J. and JONES, D. C. (1950). 'Social grading of occupation', *Brit. J. Sociol.*, **1**, 1, 31-55.

HOLT, I. (1943). 'Mental defectives in industry', *Amer. J. Ment. Defic.*, **48**, 124-5.

JAHODA, G. (1952). 'A study of the chief social determinants of occupational choice in secondary modern school leavers, with special reference to social class factors and level of social aspiration'. Unpublished PhD thesis, University of London.

MAXTED, G. W. (1956). 'Following up ESN school-leavers', *Special Sch. J.*, Sept., 13-19.

McKEON, R. M. (1946). 'Mentally retarded boys in war time', *Ment. Hygiene*, **30**, 47-5.

MUSGRAVE, P. W. (1967). 'Family, school and work: a sociological perspective', *Educ. Res.*, **9**, 3, 175-86.

ROBERTSON, J. S. (1958). 'Occupational success of mentally retarded adolescents', *Med. Off.*, **XCIX**, 21, 301-5.

SEWELL, W. H. and ORENSTEIN, A. M. (1965). 'Community of residence and occupational chances', *Amer. J. Sociol.*, March, 551-63.

WILSON, M. D. (1952). 'Realism in vocational choice: a study of the vocational preference of secondary modern school children aged 13-15 with special reference to their level of intelligence'. Unpublished PhD thesis, University of London.

THE ATTAINMENT OF CSE AND GCE CANDIDATES IN RAF SCHOOLS OVERSEAS

L. S. SKURNIK and R. WOOD *National Foundation for Educational Research*

THE ability and attainment of pupils at 10 RAF secondary schools overseas is compared with that of their contemporaries in the UK, and the effect of frequent changes of school, which the overseas pupils sometimes undergo, is also discussed. The inquiry reveals little difference in the average ability and attainment of the two groups, except that the overseas CSE candidates, unlike the GCE candidates, did less well in their examinations than their ability seems to warrant.

Since September 1964 the NFER has been conducting an annual study of the comparability of grade awards for CSE and GCE. The published reports of these studies reveal a variety of interesting facts about the outcome of secondary school education in England and Wales. [1, 2, 3] Perhaps the most noteworthy conclusion of the work of the first two years was the revelation that both the GCE and the CSE examination boards appear to be generally consistent in their award of grades in the six academic subjects studied. They also appeared to have the appropriate degree of overlap in grades between the two sectors. A follow-up survey of the educational and occupational plans of the 1965 candidates highlighted the general tendency of 'O' level GCE pupils (sampled from grammar schools) to remain in school for further education, while the great majority of CSE pupils (sampled from non-grammar schools) left school to enter employment.

When the second year study of comparability was being planned, the RAF Education Office discussed with the Foundation the possibility of being included in this annual research exercise. They wished to know, in more precise terms than were currently available, how well the secondary school pupils attending RAF schools overseas compared on scholastic aptitude and attainment with their contemporaries in the UK. They were also concerned about the possible retarding effects of frequent transfer to different schools (turbulence) which these pupils experience during their scholastic careers.

Turbulence and its impact upon attainment were realized to be rather difficult concepts for study. The published research on the subject is sparse and of uncertain quality, its main merit being the way in which it has illuminated the research variables which any investigator of turbulence must cope with. A study of the achievement of American service children attending schools in the Panama Canal Zone showed that the 'expatriates', in comparison with their peers in the USA, were of higher achievement, but later studies revealed no differences.[4]

Some very useful work has been performed by H. L. Williams, who investigated the effects of discontinuity in the education of British service

---

[1] SCHOOLS COUNCIL (1966). *The 1965 CSE Monitoring Experiment*. Parts I and II. Working Paper no. 6. London: HM Stationery Office.

[2] SKURNIK, L. S. and KAWWA, T. (1967). 'After examinations', *New Research in Education*, **1**, 1, 82-96.

[3] SKURNIK, L. S. and HALL, J. (1969). *The 1966 CSE Monitoring Experiment*. Schools Council Working Paper no. 21. London: HM Stationery Office.

[4] JOY, G. E. (1933). *Some Aspects of a Moving Population*. Ann Arbor, Michigan: University of Michigan Press. Reported in RITCHIE, R. C. R. (1965). 'The effects of school changes on service children; a review', *Torch* (Journal of the RAEC).

children in army-supported schools in Germany[1]. Williams found no evidence to support the idea that service children are inferior to indigenous children at the 11-plus stage, but had no data to indicate whether the parity of achievement still persisted five years on. The main difficulty of such studies, as Williams has suggested, is that turbulence is a concept which is difficult to study since the relevant environmental and psychological variables are extremely elusive. It has been suggested that a change of school does depress attainment, because of the unfamiliarity of the new school, but no previous research seems to have taken account of the relative adaptability of the child, the degree of encouragement provided by its parents, and the additional efforts exerted by previous heads and teachers, as well as the efforts made by new ones, to minimize the problems which might occur in the transition.

These published studies have not attempted, either, to account for long term changes in achievement which may be influenced by the educational climate of the school. The physical climate and cultural environment of the area in which the overseas pupil is situated may also impinge on his attainment. In fact, the list of relevant variables is so long that the authors came to the conclusion that a proper study of turbulence could not be conducted on the modest scale on which this project was designed. The most that could be expected from this study was a cross-sectional survey of attainment in external examinations—at one moment in time—among a biased sample of pupils attending schools overseas. This bias, the effect of which is not yet charted, and which also operates in the domestic schools, is a product of the decision to allocate children to one examination sector or the other, or both. Most domestic schools favour the GCE. In fact, the number of 'O' level GCE candidates from secondary modern schools is about equal to the total number of candidates for the CSE from all types of schools. Pupils from one school tend to be allocated wholesale to one examination sector or the other although the trend is towards differential allocation, pupils taking CSE or GCE according to their subject skill level. Ten per cent of the RAF pupils participated in both sectors.

The experiment

Over 300 schools were selected for testing in the 1966 comparability exercise, and 10 overseas schools were added. The same types of test and grade information were collected for both the RAF pupils and the national schools. Since the researchers needed an estimate of the correspondence between the two tests used in the 1965 and 1966 comparability studies, the RAF pupils sat the 'old test' as well as the new one. (The main results of this latter comparison are mentioned in *The* 1966 *CSE Monitoring Experiment* report.)

The 10 RAF schools comprised several types of school and made up the entire RAF secondary school establishment. The type and location of these schools is given in Table 1. It can be seen that only one of the schools is located in a European culture and in close proximity to the UK, while the other nine are scattered around the Near, Middle and Far East.

Table 1: Overseas schools: location and type

SCHOOL CODE NO. AND LOCATION		TYPE OF SCHOOL
1	France	All-age
2	Cyprus	All-age
3	Cyprus	Sec. Bilateral
4	Near East	Sec. Modern
5	North Africa	All-age
6	Middle East	Sec. Bilateral
7	Bahrain	All-age
8	Kenya	All-age
9	Singapore	Sec. Modern
10	Singapore	Sec. Grammar

As one might expect, all of these schools are co-educational. The sex distribution of the examination candidates who participated in this research is given in Table 2.

Table 2: Numbers of RAF candidates sitting at least one CSE or GCE examination (including 10 per cent double entries)

	BOYS	GIRLS	TOTAL
CSE	112	100	212
GCE	94	95	189

---

[1] Also reported in RITCHIE (op. cit.).

The numbers of overseas schools and candidates who sat each examination are given in Table 3. If a pupil sat for more than one subject he appears in each of the appropriate subject groups within his sector. If he sat both CSE and GCE examinations, as 10 per cent of these students did, then he appears in both sectors in the appropriate subject group.

Table 3: Number of schools and candidates in each subject

	Number of Schools Offering Candidates	Number of Candidates
English CSE	8	142
English GCE	8	129
Maths. CSE	8	134
Maths. GCE	8	101
Geography CSE	7	104
Geography GCE	8	101
History CSE	6	86
History GCE	8	74
French CSE	4	19
French GCE	4	30
Science CSE	4	65
Science GCE	7	107

Procedure

The research and testing materials, with full instructions for administration were dispatched to the schools in March 1966. Forecast grades for each subject were obtained for all pupils planning to sit one or more of the CSE or GCE subjects chosen for study. (The definition of these subjects which were provided for the teachers are given in Schools Council Working Paper Nos. 6 and 21.) Two tests of scholastic aptitude were administered to each pupil for whom at least one forecast grade was submitted. These were the Manchester test of scholastic aptitude (the 1965 comparability test) and the CP66 test (the 1966 comparability test), both of which were developed especially for the national calibration work.

At a later date, the schools were asked to supply the actual CSE and GCE grades awarded to each pupil when these became known, as well as some other details about the pupils.

Results

The mean forecast grades, the mean actual grades, and the mean 1966 aptitude test scores for each subject entry are given in Tables 4 and 5.[1]

It can be seen from the data that the teachers issuing the forecasts expect both CSE and GCE pupils to obtain grades, on average, near the mid-point of the respective grade scales. The average ability of GCE candidates in all subjects is markedly higher than that of CSE candidates, and within each examination sector the mean expected grade and the mean aptitude vary from subject to subject. All of these observations are very much in line with national statistics.

The contrast between forecast and actual grades shows that the teachers forecasting the geography and history grades in the CSE sector are typically optimistic relative to the attainment mean grades of their charges, whereas the CSE maths and science grade forecasts seem too pessimistic. The grades in the remaining two subjects, however, seem to be very realistically predicted.

In the GCE sector history, maths and science attainments are overestimated, forecasts for English are only moderately optimistic, but geography realistically appraised.

The central subject of this inquiry was the aptitude and attainment level of these overseas pupils relative to their counterparts in England and Wales. Tables 6 and 7 contrast the actual grade means and CP66 test means for the national CSE and GCE pupils samples with means for the overseas schools. The tables also include an index of achievement which represents the extent to which the mean grades of the RAF sample deviate overall from the national norms of attainment for corresponding levels of aptitude.[2]

The CSE pupils in overseas schools appear, on average, to be at least as able in scholastic aptitude as the typical CSE examinee. They seem to underachieve in attainment, however, obtaining grades below the norms in English. They are on a par with national norms in mathematics, French and science.

---

[1] CSE grades range from a high of one down to five, plus a further category called 'ungraded' which in this research is assigned the number six. GCE 'O' level grades vary from a high of one down to nine, with the first six grades published as GCE 'pass' and the last three as 'fail'.

[2] Detailed explanations of the statistical method employed are described in the Schools Council Working Paper. (Op. cit.).

Table 4: CSE forecast grade, actual grade and 1966 test score means

SUBJECT	FORECAST GRADE MEAN	ACTUAL GRADE MEAN	CP66 MEAN	MEAN GRADE DIFFERENCES (FORECAST—ACTUAL)
English	3·25	3·20	40·80	+0·05
Mathematics	3·67	3·32	44·12	+0·35
Geography	3·34	3·61	42·82	—0·27
History	3·14	3·82	42·75	—0·68
French†	3·00	3·00	51·95	0·00
Science	3·33	3·14	43·42	+0·19

†The figures for French should be treated cautiously since they are based upon an insufficient number of schools and candidates to draw any reliable conclusions.

Table 5: GCE forecast grades, actual grade and 1966 test score means

SUBJECT	FORECAST GRADE MEAN	ACTUAL GRADE MEAN	CP66 MEAN	MEAN GRADE DIFFERENCES (FORECAST—ACTUAL)
English	4·99	5·26	54·19	—0·27
Mathematics	5·14	6·06	57·84	—0·92
Geography	5·24	5·26	56·64	—0·02
History	4·75	5·55	53·61	—0·80
French†	5·39	5·42	63·87	—0·03
Science	5·50	6·16	57·04	—0·66

†The figures for French should be treated cautiously since they are based upon an insufficient number of schools and candidates to draw any reliable conclusions

The GCE examinees present a somewhat different picture. Apart from the pupils who take French examinations and appear to be an intellectual élite, candidates seem to be as able as the national GCE candidates. In contrast to their CSE classmates, they are apparently over-achieving in their geography and history examinations but underachieving in mathematics and science, while attainment in French and English appears on a par with their ability. The overall attainment of the RAF candidates therefore seems to be on a par with that of national GCE candidates.

An alternative appraisal of standards can be made by looking at the ability and subject performance of pupils in the sample of schools drawn from the two examining boards which are respectively responsible for examining the CSE and GCE pupils in the overseas schools (the 'parent boards'). The parent board standard may be more appropriate for comparisons than the national norms, since the observed trends of over or underachievement may be partly accounted for by tendencies toward severity or leniency in the grading of other boards. Since the RAF candidates sat the exams of these two boards only, the boards' grading tendencies should be self-cancelling.

Some reservations must be expressed about these comparisons. The samples obtained to represent respectively the parent CSE and GCE boards are relatively similar in size to the numbers in the overseas schools and two different types of samples, one random and the other non-random, are being compared. Statistically precise comparisons are therefore not possible. It should also be noted that unique conditions which have not been isolated in the overseas schools may be responsible for certain oddities in the data. For instance, although the numbers of CSE and

GCE French candidates are trivial, only a high ability, selected group seem to be chosen or are allowed to study modern languages in the schools, overseas and at home.

The mean grades and mean test scores of both samples are presented in Tables 8 and 9. These data show again that the RAF CSE candidates, are, on average, at least as bright as the national group in ability, but this is not supported by the grade awards. The conclusion that the RAF CSE candidates are under-achieving in relation to home-based candidates is difficult to resist, particularly since it is borne out in five of the six comparisons.

In the GCE sector, the state of the overseas schools *vis-à-vis* the parent board sample is consistent with the national comparison. The GCE pupils in these overseas schools seem to be less able by a very small margin, but this time the slight deficiency in test ability is reflected in the relative quality of the grade awards, with the possible exception of science.

Conclusions

On the basis of the evidence the following conclusions are warranted:

CSE and GCE examination candidates in RAF overseas schools are, on average, virtually of the same calibre in scholastic aptitude as their contemporaries attending school in England and Wales.

In comparison to the indigenous population, the CSE pupils do not secure the grades which their ability seems to warrant. This could be attributed to a general tendency toward 'under-achievement' or perhaps to the influence of other factors. On the other hand, the RAF GCE candidates obtain grades which represent an achievement which is virtually identical with the indigenous pupils.

Table 6: CSE actual grade and CP66 means for the 1966 national sample and the overseas schools, with an index of achievement

Subject	1966 National Sample		Overseas Schools		Index of Achievement (+ Indicates Over-Achievement
	Actual Grade (and Means SE)	*CP66 Means (and SE)*	*Actual Grade Means*	*CP66 Means*	
English	2·97 ± 0·15	37·6 ± 1·3	3·20	40·80	—0·35 ± 0·3
Mathematics	3·21 ± 0·15	42·0 ± 1·3	3·32	44·12	—0·24 ± 0·3
Geography	3·19 ± 0·18	39·6 ± 1·5	3·61	42·82	—0·55 ± 0·3
History	3·14 ± 0·20	39·6 ± 1·8	3·82	42·75	—0·78 ± 0·3
French	3·21 ± 0·26	46·8 ± 2·3	3·00	51·95	+0·09 ± 0·3
Science	3·26 ± 0·16	41·2 ± 1·4	3·14	43·42	+0·03 ± 0·3

Table 7: GCE actual grade and CP66 means for the 1966 national sample and the overseas schools, with an index of achievement

Subject	1966 National Sample		Overseas Schools		Index of Achievement (+ Indicates Over-Achievement
	Actual Grade (and Means SE	*CP66 Means (and SE)*	*Actual Grade Means*	*CP66 Means*	
English	5·28 ± 0·31	55·5 ± 2·1	5·26	54·2	+0·11 ± 0·3
Mathematics	5·47 ± 0·38	58·6 ± 1·7	6·06	57·8	—0·51 ± 0·3
Geography	5·67 ± 0·40	55 9 ± 2·0	5·26	56·6	+0·36 ± 0·3
History	5·81 ± 0·50	56·9 ± 2·0	5·55	53·6	+0·40 ± 0·3
French	5·68 ± 0·40	59·1 ± 1·8	5·42	63·9	—0·02 ± 0·3
Science	5·64 ± 0·39	57·9 ± 2·1	6·16	57·0	—0·46 ± 0·3

Table 8: CSE actual grade and CP66 means for the parent board sample and the overseas schools, with index of achievement

SUBJECT	PARENT BOARD SAMPLE		OVERSEAS SAMPLE		INDEX OF ACHIEVEMENT (+ INDICATES OVER-ACHIEVEMENT)
	Actual Grade (and Means SE)	*CP66 Means (and SE)*	*Actual Grade Means*	*CP66 Means*	
English	2·89 ± 0·12	39·1 ± 1·3	3·20	40·80	—0·43 ± 0·3
Mathematics	2·92 ± 0·15	41·9 ± 1·2	3·32	44·12	—0·63 ± 0·3
Geography	3·31 ± 0·13	40·1 ± 1·5	3·61	42·82	—0·48 ± 0·3
History	3·36 ± 0·15	40·4 ± 1·3	3·82	42·75	—0·66 ± 0·3
French	2·68 ± 0·21	46·9 ± 1·3	3·00	51·95	—0·49 ± 0·3
Science	3·13 ± 0·15	40·9 ± 1·1	3·14	43·42	—0·18 ± 0·3

Table 9: GCE actual grade and CP66 means for the parent board sample and overseas schools, with index of achievement

SUBJECT	PARENT BOARD SAMPLE		OVERSEAS SAMPLE		INDEX OF ACHIEVEMENT (+ INDICATES OVER-ACHIEVEMENT)
	Actual Grade (and Means SE)	*CP66 Means (and SE)*	*Actual Grade Means*	*CP66 Means*	
English	5·21 ± 0·23	57·3 ± 2·3	5·26	54·19	+0·17 ± 0·3
Mathematics	5·65 ± 0·40	60·9 ± 1·3	6·06	57·84	—0·09 ± 0·3
Geography	5·01 ± 0·57	58·9 ± 2·5	5·26	56·64	—0·11 ± 0·3
History	5·49 ± 0·69	58·9 ± 1·6	5·55	53·71	+0·16 ± 0·3
French	5·77 ± 0·57	58·2 ± 2·4	5·42	63·87	+0·01 ± 0·3
Science	5·51 ± 0·21	59·5 ± 2·8	6·16	57·04	—0·49 ± 0·3

Williams was inclined to think, from the evidence gathered in his research, that frequency of school changes during a school career did not have a depressant effect on the attainment of Service children. He has since made the point[1] that while he could discover no deficit as a result of mobility, there is no reason why turbulence should not be present as a depressant factor. Remedial countermeasures, such as the favourable pupil-teacher ratio which is known to obtain in Service schools, could be responsible for cancelling out its potency. The same conjecture might be made about the nature of the attainment of the children in our study, but since we were not able to look at this issue we can offer no substantive data.

Research into educational attainment in overseas schools and, in particular into discontinuity clearly poses formidable problems. Ritchie has remarked 'The bedevilling factor, of course, in investigating this subject is the difficulty of isolating the influence of discontinuity as an effect upon educational progress. For the question that really requires to be answered is what difference there is in the progress of comparable children receiving educational experience equal in all significant respects except for the element of discontinuity. But in what ways must the two groups be initially comparable—intelligence, attainment, cultural environment, socio-economic background? In what ways must the educational experience be comparable—type of schools, type of home, efficiency of teaching, subjects studied? What in any case constitutes discontinuity—changes of home, of school, of teachers, of class, of syllabus?'

Any future research into the comparative attainment of transient and non-transient populations must take account of these mercurial variables and endeavour to incorporate them as quantifiable parameters in the research design.

---

[1] Information contained in a personal communication.

THE INFLUENCE OF HANDWRITING ON ASSESSMENT

DENNIS BRIGGS *Education Department, Shenstone College, Worcestershire*

THE purpose of the experiment described in this paper was to see if teachers, in their assessment of children's essays, were influenced by the quality of the handwriting style. Ten essays were chosen from a large number written by 11-year-old children on the theme 'The day of the big fog'. A range of 10 contrasting handwriting styles was chosen from those of other children, and the 10 handwriters reproduced each of the 10 essays, thus giving 100 combinations of content and handwriting styles.

Groups of teachers to assess the essays were chosen as follows: there were ten judging groups of five teachers each, each group representing one school; five of the schools were primary and five secondary. The teachers' instructions were to 'impression mark' and to rank the essays. There was no indication of the fundamental purpose of the experiment.

Analysis of variance was used to determine the results. These indicated, firstly, that the handwriting did have a significant influence on the teachers' marking ($p=0{\cdot}001$), and secondly, that there may be a primary/secondary difference of attitude towards handwriting.

A familiar situation to most teachers is that of a colleague finding a very untidily written piece of work while marking a set of exercises. Harsh words may be said about the pupil responsible. The offending exercise may be placed at the bottom of the pile. The teacher concerned is clearly reacting to an undesirable presentation of work.

It has been stated (Gordon and Mock, 1960) that 'good and bad writers are to be found in all age groups and at all levels of intelligence, for there is little relation between good writing and intellectual ability. Handwriting depends upon mental and physical co-ordination, that of hand, eye, and the directing intelligence, and however acute the intelligence of some individuals, they may be wholly unable to acquire the necessary manual dexterity.'

Burt (1917) has shown the low inter-correlation of achievement in primary school subjects and found that writing quality inter-correlated to the smallest extent. Hartog and Rhodes (1936) demonstrated the differences which may exist between examiners and pointed out that discrepancies may arise between two examiners' assessments of the same piece of work in a variety of ways: 'The candidates' writing may be poor or untidy; in such a case one examiner may read one meaning into what is written, another examiner may read something different'.

An experiment to demonstrate the influence of handwriting upon essay assessment (Shepherd, 1929) used one essay, two strongly contrasting writing styles (90 per cent and 30 per cent on the Ayres Scale) and 450 judges. The judges were split into two equal groups. One group was given the essay in the well-written version and three weeks later received the poorly written version. The other judging group received the essays in the opposite order, also with a three-week interval. Both groups of judges rated the well written version as better than the poorly written version.

Hallworth has shown (1962) that in teachers' judgements of their pupils, emotional stability, trustworthiness, persistence and co-operation have much the same meaning. Might not the poor and erratic writers of the classroom suffer a complex

Figure 1: Design of the experiment

	Handwriting Styles									
Authors	A	B	C	D	E	F	G	H	I	J
1	I	II	III	IV	V	VI	VII	VIII	IX	X
2	X	I	II	III	IV	V	VI	VII	VIII	IX
3	IX	X	I	II	III	IV	V	VI	VII	VIII
4	VIII	IX	X	I	II	III	IV	V	VI	VII
5	VII	VIII	IX	X	I	II	III	IV	V	VI
6	VI	VII	VIII	IX	X	I	II	III	IV	V
7	V	VI	VII	VIII	IX	X	I	II	III	IV
8	IV	V	VI	VII	VIII	IX	X	I	II	III
9	III	IV	V	VI	VII	VIII	IX	X	I	II
10	II	III	IV	V	VI	VII	VIII	IX	X	I

handicap? Teachers, inevitably, have likes and dislikes, prejudices and preferences. Most pupils are well aware that their teachers encourage and prefer tidy writing and presentation. But can all pupils be expected to become excellent handwriters? Handwriting, surely, is an expression of the individual and there must be individual differences. This means, of course, that the handwriting of some children will, in the opinion of the teacher, be preferable to that of others. Does this preference influence teachers in their assessments of children's work?

Given a hypothetical situation, where several children produce an identical essay, it seemed to me highly probable that teachers would award higher marks to the 'better' writers. The following account describes an experiment (Briggs, 1964) based on such a situation.

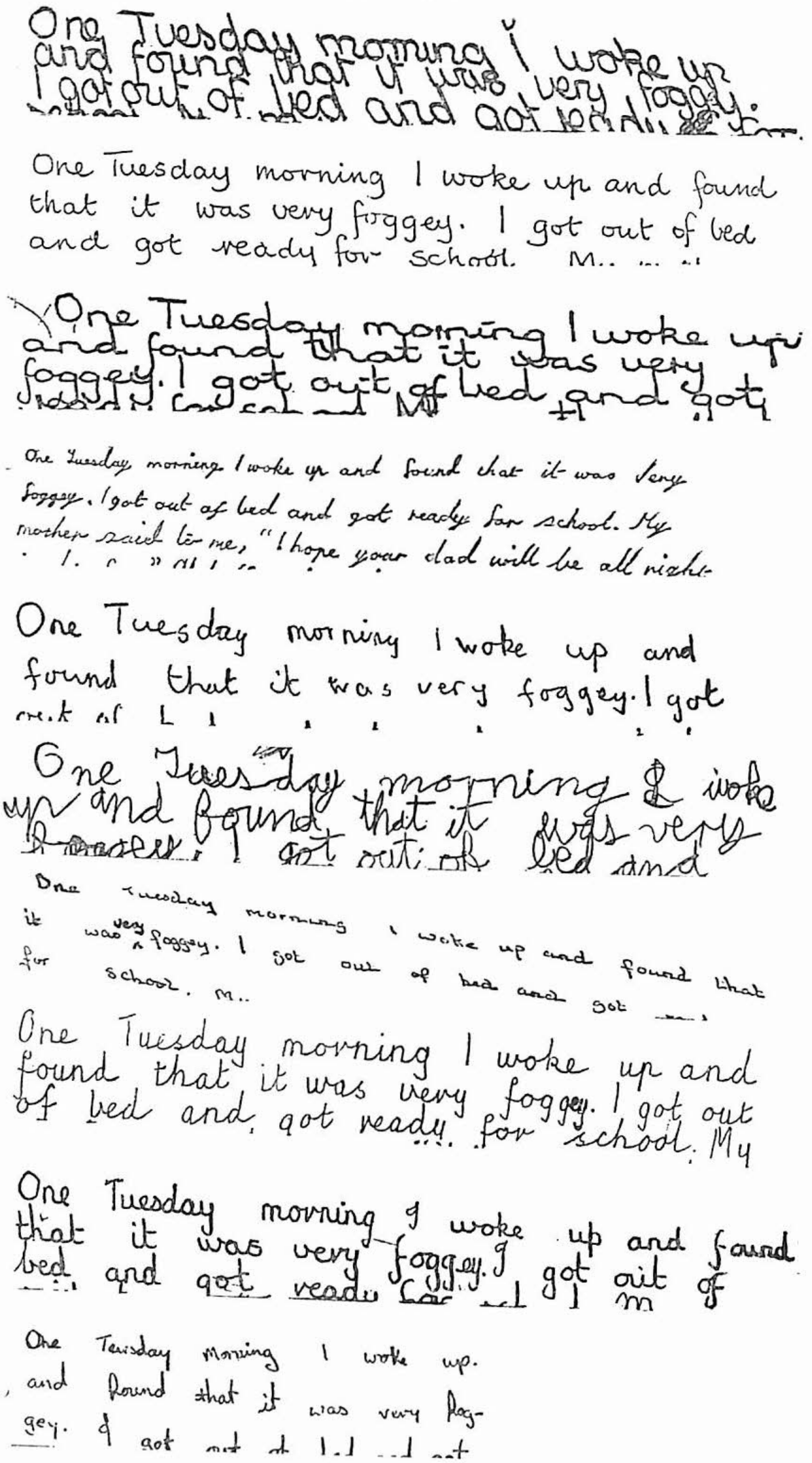
Design and procedure

The design of the experiment was in the form of a Latin square (Figure 1). Ten different essays were each copied out in ten different writing styles and presented to ten different groups of teachers for assessment. Each judging group was composed of five teachers from the same school. Schools I to V were secondary and Schools VI to X were primary. Thus, for example, the five teachers of School VIII saw essay 1 in style H, essay 2 in style I, essay 3 in style J, essay 4 in style A and so on.

The first task was to obtain the ten essays. Over one hundred first-year boys and girls from a large comprehensive school wrote an essay entitled 'The day of the big fog'. Using this particular age group meant that the authors could be described as of the 11-plus stage and that both primary and secondary teachers could be invited to take part in the assessment process. The essays were written under examination conditions for twenty minutes. This helped to obtain essays which were concise. In the selection of 10 from the original 115 essays I looked for those which had a good grammatical standard, had some literary merit, and were complete, 'rounded off' stories. The intention was to select 10 essays which offered the least variation in academic ability. The children from this particular school took no further part in the experiment.

The second stage was to reproduce the selected essays in ten contrasting styles of handwriting. Finding children who were neat, tidy writers and others whose writing was untidy and poor was not difficult. It was difficult, however, to find children who were capable of sustained, faithful copying; children who could make exact reproductions of the original essay content with all its particular errors. A further problem was the day by day

Figure 2: The ten handwriting samples



STYLE A

One Tuesday morning I woke up
and found that it was very foggy.
I got out of bed and got [illegible]

STYLE B

One Tuesday morning I woke up and found
that it was very foggey. I got out of bed
and got ready for school. M..

STYLE C

One Tuesday morning I woke up
and found that it was very
foggey. I got out of bed and got

STYLE D

One Tuesday morning I woke up and found that it was very
foggey. I got out of bed and got ready for school. My
mother said to me,
"I hope your dad will be all right

STYLE E

One Tuesday morning I woke up and
found that it was very foggey. I got

STYLE F

One Tuesday morning I woke
up and found that it was very
foggey. I got out of bed and

STYLE G

One Tuesday morning I woke up and found that
it was very foggey. I got out of bed and got
for school. M..

STYLE H

One Tuesday morning I woke up and
found that it was very foggey. I got out
of bed and got ready for school. My

STYLE I

One Tuesday morning I woke up and found
that it was very foggey. I got out of
bed and got [illegible]

STYLE J

One Tewsday Morning I woke up.
and found that it was very fog-
gey. I got

Note: Samples are reduced to two-thirds of their actual size.

Figure 3: The distribution of marks

	A	B	C	D	E	F	G	H	I	J	AUTHOR TOTALS
1	I 38	II 54	III 58	IV 48	V 36	VI 33	VII 51	VIII 40	IX 44	X 45	457
2	X 57	I 57	II 72	III 58	IV 67	V 43	VI 56	VII 75	VIII 65	IX 52	602
3	IX 65	X 81	I 62	II 72	III 71	IV 62	V 71	VI 58	VII 81	VIII 58	681
4	VIII 40	IX 46	X 41	I 29	II 44	III 45	IV 46	V 27	VI 40	VII 50	408
5	VII 47	VIII 67	IX 60	X 53	I 54	II 36	III 41	IV 57	V 47	VI 44	506
6	VI 75	VII 73	VIII 72	IX 54	X 71	I 53	II 62	III 69	IV 69	V 73	671
7	V 41	VI 47	VII 50	VIII 34	IX 28	X 47	I 34	II 46	III 38	IV 41	406
8	IV 80	V 86	VI 82	VII 85	VIII 80	IX 75	X 77	I 73	II 78	III 68	784
9	III 60	IV 80	V 67	VI 60	VII 75	VIII 65	IX 56	X 65	I 58	II 64	650
10	II 43	III 61	IV 61	V 36	VI 41	VII 59	VIII 37	IX 55	X 46	I 35	474
STYLE TOTALS	546	652	625	529	567	518	531	565	566	540	
SCHOOL TOTALS	I 493	II 571	III 570	IV 610	V 527	VI 536	VII 646	VIII 558	IX 535	X 593	

variation in a child's writing. The task of copying ten essays was a lengthy one for some children. Each essay was copied on to master carbon sheets for reproduction on a spirit duplicator. Most of the children concerned took several days to complete this arduous job.

The final range of writing styles is illustrated in Figure 2, which shows the ten style variations of the opening essay no. 4. The coding of the styles from A to J is purely arbitrary. Nine of the styles were the work of children; one style was the work of an adult imitating a 'good' Marion Richardson form.

In order to obtain a quality scale for the handwriting, the opinions of ten teachers who took no other part in the assessment procedures were used. These teachers were each given the ten style versions of essay 6 and asked to place them in rank order for 'that writing quality which pleased them most'. The quality scale (Table 1) is based upon the collective ranks made by these teachers. It is worth noting that there was unanimity over style F. It was placed 10th by every teacher. Style B was placed first by nine of the teachers and second by the other one.

Table 1: Handwriting quality scale

1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
B	H	C	I	G	J	E	A	D	F

All the assessing teachers were normally concerned with the teaching of English. The instructions given to them may be summarized as follows:

(a) to devote approximately 30 minutes to the whole task;

(b) to read through all ten essays first;

(c) to establish personal preference by ranking them;

(d) after ranking to award each essay a mark out of twenty;

(e) to base their judgement only upon the total impression and not to use sub-totals for spelling, syntax, etc.;

(f) to indicate which essays suggest a grammar school potential;

(g) to record the time taken.

The purpose of asking for the rank order to be done first was to encourage a fair spread of marks. The emphasis on the recording of time and speed was intended to encourage impression marking (Wiseman, 1949). The question about grammar school potential was included because it seemed particularly relevant to this age group of essay authors and it would also help to mask the original purpose. Any hint of this could easily distort the marking.

It was desirable both within each school group, and between schools that no comparisons should be made and that the teachers should not consult each other. This was stressed in the instructions, and as far as I know the teachers followed the instructions faithfully.

Results

The marks allotted by the judging groups are shown in Figure 3. Each cell contains the total marks from the five teachers in the group, which they awarded to that particular essay in that particular style.

Thus the author or horizontal totals show the total marks awarded by 50 teachers to any one essay in all its ten styles. The writing style or vertical totals show the total marks awarded by 50 teachers to one writing style version of 10 different essays.

The school totals are obtained from diagonal summation and represent the total marks of the five teachers from any one school. Table 2 shows these horizontal (author) and vertical (style) totals in order of preference.

Table 2: Preferences

PREFERENCE FOR AUTHOR		PREFERENCE FOR STYLE
Essay 8	1st	Style B
3	2nd	C
6	3rd	E
9	4th	I
2	5th	H
5	6th	A
10	7th	J
1	8th	G
4	9th	D
7	10th	F

Dividing the raw scores in the horizontal and vertical totals by 50 we can approach two hypothetical situations: firstly, how does an 'average teacher' mark ten different essays—all of them in the same handwriting? Secondly, how does an 'average teacher' mark ten different writing style versions of the essay? The probable influence of author gives a range from almost 16 marks out of 20 to eight out of 20. This seems a fair decision on the part of the 'average teacher'. On the other hand, presented with only one essay but a range of writing styles the result may not seem as fair. But it is certainly interesting. There is a range from 13 out of 20 to 10 out of 20. These two extremes represent styles B and F!

Examining the rank difference correlation between the style preferences and the quality scale, rho = +0·76. Checking the rank difference correlation between the primary schools and the secondary schools the following figures obtain:

rho = +0·93; primary with secondary (author preference),
rho = +0·36; primary with secondary (style preference),
rho = +0·39; primary style preference with quality scale,
rho = +0·82; secondary style preference with quality scale.

The total marks awarded by schools have been shown in Figure 3.

Applying Duncan's New Multiple Range Test (Edwards, 1963) to the differences between the ten school means, two schools (I and VII) were found to differ significantly (p = 0·1). I cannot explain this difference. The two schools, a girls' secondary and a primary in a poor district may have had very different approaches to the marking of English.

Analysis of the summary totals shown in Figure 3 revealed significant variances both by authors and by schools (p = 0·001). The main purpose of the experiment concerned the significance of the F ratio for handwriting styles. This too is significant at 0·001.

The response to the 'grammar school potential' request, included partly as camouflage, is most interesting. The mean vote was 20, and there were 31 endorsements for style B. Styles C and H were the next most popular, and style G the least popular.

Discussion

The evidence from this experiment supports the hypothesis that handwriting influences the assessment of essays. This of course cannot be directly related to classroom practice. Other influences have to be taken into account. The teacher's mark may be conditioned by the child's effort. He may mark up to encourage, or down for the same reasons and so on. Pupil/teacher relationship is very important here.

Nevertheless, these findings have a certain implication for the teacher. He may well mark down because the writing is poor or because more than usual effort on his part is required to read it. There is a stronger implication for the marker of anonymous scripts as this is the position in which the assessors were placed in this experiment. For example, the influence of style B in a pass/fail situation is clear.

Further investigation is warranted. The range of writing styles was limited by the reproduction medium. The use of a different duplicating system might enable a greater variety of writing styles to be represented.

It would be worthwhile to look at the possible influence of handwriting and tidiness in other kinds of written work, such as history essays and science experiment write-ups.

Although one can detect a difference in attitudes to style between primary and secondary school teachers, no direct evidence has been obtained on this. Application of the same Latin Square twice, once to primary schools and once to secondary schools, would have been more informative. The quality scale may have been inadequate as it drew in the judgements of only ten teachers. During the preparation period the writing of some children varied slightly from day to day. The quality scale, which was based on only one set of writing styles (essay 6), could be criticized for this too; for greater accuracy all essays should have been used to compile the scale; but it may be surmised that this would have made little difference.

References

AYRES, L. P. (1920). *A Scale for Measuring the Quality of Handwriting*. New York: Russell Sage Foundation.

BRIGGS, D. B. (1964). Unpublished Diploma in the Psychology of Childhood dissertation, University of Birmingham.

BURT, C. (1917). *The Distribution and Relations of Educational Abilities*. London: King.

EDWARDS, A. L. (1963). *Experimental Design in Psychological Research*. New York: Holt, Rinehart & Winston.

GORDON, V. E. C. and MOCK, R. (1960). *Twentieth Century Handwriting*. London: Methuen.

HALLWORTH, H. J. (1962). 'A teacher's perception of his pupils', *Educ. Rev.*, **XIV**, 2, 127.

HARTOG, D. and RHODES, E. C. (1936). *The Marks of Examiners*. London: Macmillan.

SHEPHERD, E. M. (1929). 'The effect of quality of penmanship on grades', *J. Educ. Rev.*, **XIX**, 2, 102-5.

WISEMAN, S. (1949). 'The marking of English compositions in grammar school selection', *Brit. J. Educ. Psychol.*, **XIX**, 200-9.

PARENTS' ATTITUDES TO EDUCATION

R. PALLISTER and J. WILSON *Neville's Cross College, Durham*

THE aim of this small scale investigation was to compare the attitudes, aspirations and knowledge of working class and middle class mothers with regard to the education system. The working class mothers proved to know very much less about the system and were less eager for their children to go on to higher education. Middle class parents tended to be ambitious beyond the child's intellectual capacity, while working class parents tended to be under-ambitious and to underestimate the child's intellectual ability. In terms of job ambitions, parents' expectations conformed with their own class background rather than with children's actual potentialities. The author concludes with positive recommendations for breaking down preconceptions about their children's capabilities.

The aim of the study reported here was to compare the attitudes towards education, the knowledge of the education system and educational aspirations of some working class and middle class mothers. The research was carried out in Hartlepool, where 77 mothers were interviewed individually, each having an eldest child in the third or fourth year of a large primary school in the town. By limiting the interviewees to those who had no child beyond the 11-plus age group, we eliminated those parents whose knowledge of the education system and attitude towards it might have been affected by already having seen a child of theirs transfer to secondary school. This particular age group was chosen because the children were about to transfer to the secondary school, where parental guidance and support could be vital to the child's future. Mothers were chosen, in preference to fathers, because they were more readily available for interview in the home. For social classification, the father's occupation was taken as the determinant. Each parent was interviewed by the same interviewer and was presented with a list of the questions asked by the interviewer, who recorded the answers on a separate sheet.

The children came from a very wide and varied social background. The school serves both the most prosperous area of Hartlepool, the district to its west, where houses cost over £6,000 and, closer to the school, an area of semi-detached housing costing between £2,500 and £3,000. It also serves an area, east of the school, consisting of many small Victorian terraced houses, scheduled for demolition. The families are gradually being housed in a new council estate to the southwest of the town. Our sample of mothers consisted of 33 whom we classified as middle class, and 44 whom we defined as working class. The middle class fathers included professional and managerial men, clerical officers, bank officials and sales representatives. The working class fathers were skilled and semi-skilled manual workers, such as electricians, joiners, bricklayers and dockers. We further sub-divided each group into two, the topmost class consisting of 13 upper class fathers: seven managers, two doctors, a solicitor, a director of a firm, an accountant and a chief industrial chemist. The lowest class comprised 22 unskilled manual workers.

A preliminary assessment was made of the degree of social mobility from group to group within the families, and we found that there had been very little movement from one group to another by any of the families. No interviewees, born into the working class (given by the interviewee's father's occupation) had moved to the upper middle class, and there were only two cases of people born into the middle class who had fallen to class four in our scale. Sixty per cent of the parents had made no movement either upward or downward in the social scale, Of the 77 mothers interviewed, only 12 had brothers, sisters, or brothers- and sisters-in-law in different social classes. It would appear that this was a static society.

Many working class parents are unable to give advice and encouragement to their children about their school work as they are ignorant of what is going on in the field of education. To test their knowledge of the education system the mothers were asked several questions, requiring short factual answers. The first question in this part of the questionnaire was probably the most difficult for the interviewees to answer: we asked them to state what the role or function of particular institutions was. Eight institutions were given—Secondary Modern School, Grammar School, Technical College, Technical School, University, College of Education, College of Advanced Technology and Comprehensive School. The interviewer had to assess the accuracy and knowledge shown on a five point scale, five marks indicating the most accurate understanding. As one would have expected, the two middle class groups outscored the working class groups. Those institutions to cause most confusion were the College of Education and the College of Advanced Technology, possibly because these terms were new and because neither existed in the town. The working class mothers scored their highest marks for the Secondary Modern School. The middle class mothers scored equally well on Secondary Modern, Grammar School and University.

A further question asked for the full meaning of the following abbreviations: DES, NUT, BA, UCCA, PhD, LEA, PTA, GCE, CSE, i.t.a.; a maximum of five marks was given for a correct answer, ranging down to nought for totally incorrect. Once again the answers to this question show how superior the knowledge of the education system of the middle class is to that of the working class. In not less than four of the sections (DES, UCCA, LEA, i.t.a.) all 44 members of the working class groups failed to register a mark at all. It is interesting to note that the lowest class knew more about CSE than they did about GCE although CSE is of fairly recent origin, while the middle classes scored significantly higher marks for GCE. The conclusion we drew from this and the previous question was that, even before their children reach the secondary stage, the parents are already orientated towards a Grammar School/GCE education if they are middle class, and to a Secondary Modern/CSE education if they are working class.

The interviewees were asked to name a college of education. Eighteen of the thirty-three mothers in the middle class groups were able to do so. None in the lowest of the four classes were able to name a college of education and none was able to name the present Secretary of State for Education and Science.

What was so alarming about these results was not that there was a difference in the amount of knowledge that the classes had of the education system, but the extent of the difference. If one can assume that an interest in education and ability to guide the child presupposes a knowledge of the

Table 1: What is the role of each of the following institutions?

	Classes (Average Mark Out of Five)			
Institution	*Upper Middle*	*Lower Middle*	*Upper Working*	*Lower Working*
Secondary Modern School	4·2	4·4	3·0	2·3
Grammar School	4·4	4·4	2·7	2·0
Technical School	3·3	3·9	2·4	1·6
University	4·1	4·1	2·7	2·1
College of Education	2·1	1·8	0·2	0·1
CAT	2·1	1·1	0·3	0·1
Technical College	2·1	2·5	1·8	1·2
Comprehensive School	4·1	3·9	2·7	2·2

Table 2: Ideal age for ending compulsory education

Age at Which Compulsory Education Should be Ended	Classes (Number of Parents Shown) *Upper Middle* (*N* = *13*)	*Lower Middle* (*N* = *20*)	*Upper Working* (*N* = *22*)	*Lower Working* (*N* = *22*)
14	0	0	0	3
15	1	5	7	14
16	12	15	15	5
17	0	0	0	0

education system, the working class child is tremendously disadvantaged.

The attitude of the parents towards the education system was obtained by asking the following questions:

1. Which do you think would be the ideal age for ending compulsory education?
2. If your child had the choice of leaving school at 15 or carrying on, which would you advise him to do?
3. Would you be willing to give your child financial support in higher education?
4. Place the following items of government expenditure in order of priority: The Arts, Communications, Defence, Education, Overseas Aid, Social Security.

No one wanted compulsory education to go on beyond 16 and none wanted it to end before 14, although we did give the respondents the opportunity of choosing 13. Over half of the working class parents saw no need to raise the school-leaving age. We did not inquire into the reasons for their replies, but it is probably fair to assume that economic factors are of some importance in their decisions. In an attempt to pinpoint the question of the value of further education, the mothers were asked whether they would want their children to stay on after the age of 15. All the middle class mothers and all but one of the upper working class mothers said they would be prepared to keep their children at school, but this was true of only ten of the mothers in the lowest group. The third question asked: 'Would you be willing to give your child financial support in higher education?' Only one person in the top three groups was unwilling; she fully favoured higher education, but felt that the grants provided by government should be such that no young person of 18 or over need be financially dependent on parents. Seven out of the twenty-two members of our fourth group were unwilling to give any financial support to their children in further education.

Question four asked the mothers to place government spending in order of priority. Each interviewee marked her list one to six, the lower the number the greater the priority. The aggregate scores are given in Table 3 below. All groups placed defence expenditure first. The

Table 3: Government expenditure in order of priority

Expenditure	Classes (Aggregate Scores Shown) *Upper Middle*	*Lower Middle*	*Upper Working*	*Lower Working*
The Arts	60	108	124	127
Communications	46	65	67	71
Defence	17	35	31	29
Education	31	44	61	71
Overseas Aid	72	109	118	124
Social Security	53	59	61	61

two middle class groups had education a close second, but group three placed education and social security equal second. To the lowest class, social security was more important than education. It is obvious that the working class mother is more concerned about sickness payments, unemployment benefits, pensions and so forth than she is about education. Education is seen as a less urgent necessity; financial pressure bears down on the working class family to deter the child from attending an educational institution beyond the statutory school-leaving age.

The decision to keep a child at school beyond 15 depends on the economic pressures just mentioned and also on the aspirations the parents have for the child. We tried to obtain representation of the parent's aspirations in the belief that if a parent aims high for the child then the child too will aim high. Moreover, the parent will endeavour to guide and help the child in the direction of the aspiration. Each mother was given a list of occupations and was asked to indicate those for which she believed her child was suitable and had potential.

Besides answering the schedule, the interviewees were given the opportunity of choosing other jobs which they thought might suit their child. In group A, eight women gave suggestions; for the boys there was a musician, an accountant, and three who would probably carry on the family business; for the girls there was a translator and two nurses. Group B offered three possibilities—archaeologist, scientist and beauty consultant. Neither of the other two groups provided any further suggestions. It is noticeable that the upper middle class group avoided the unskilled and skilled manual jobs. The parents in this group are aiming at the professions, and particularly those professions which carry the highest social status, although the ambition for the daughter is less than for the son: all the Class A parents saw their sons as potential doctors, but only half saw their daughters in the same occupation. None of the middle class parents accepted that their child might be a bus driver, a dustman, a shop assistant, a factory worker or a bus-conductress. The upper-middle class parents did not think that their sons might be even skilled

Table 4: Occupations for which the boy is suited

OCCUPATION	CLASSES *A*	 *B*	 *C*	 *D*
Teacher	77%	100%	100%	33%
Plumber	0	15	45	92
Doctor	100	85	81	8
Bricklayer	0	8	45	92
Lawyer	100	85	90	0
Chemist	88	100	100	8
Civil Servant	77	100	90	50
Professional Footballer	0	15	17	17
Bus Driver	0	0	0	84
Dustman	0	0	0	75

Table 5: Occupations for which the girl is suited

OCCUPATION	CLASSES *A*	 *B*	 *C*	 *D*
Teacher	100%	100%	90%	0%
Doctor	50	86	45	0
Lawyer	75	100	62	0
Chemist	75	86	90	0
Civil Servant	100	100	90	50
Shop Assistant	0	0	35	100
Factory Worker	0	0	27	100
Bus Conductress	0	0	27	100

manual workers. The lowest of our classes had limited ambitions. None of the mothers expected her daughter to obtain a professional job, and all thought that the daughters were suited for work as shop assistants, factory workers, and bus-conductresses. The ambition for sons was greater than for daughters. A third of the parents in the lowest class thought that their sons were capable of becoming teachers, and half thought that the sons were capable of becoming civil servants, although it is not clear what the parents understood by the term 'civil servant'. There was a tendency for the middle class parent to be ambitious beyond the child's intellectual capacity, and for the working class parent to be under-ambitious and under-estimate the child's intellectual ability. It seems improbable that no girl from Group D is capable of obtaining a professional job, as indicated by the mothers, nor is it likely that all the boys from the upper middle class are capable of becoming doctors or lawyers. For example, a boy who was three quarters of the way down his year group in attainment was proposed as a possible lawyer or doctor. There exists an 'ambition-intellect' gap in both cases, but in the case of the middle classes the gap tends to be closed in a positive way, that is drawing the child up towards the ambition, while the gap for the lower classes is closed in a negative direction, downward. The ethos of the middle class home and environment supports the child's intellectual development and steers him to higher possibilities in education. The working class child is discouraged by his environment and his educational aim is pitched at a level much below his potential in many cases.

Conclusions

What is so alarming about these comparisons is not so much that the lower working class mother has less knowlege of the education system than the middle class mother, but that there is a sense of inevitability in the positions they hold in the social, economic and educational spheres: parents who belong to the working class cannot see their children rising above this class. It is regrettable that parents of a ten-year-old are already orientated towards a particular type of education. The dangers of over-ambition are as apparent in one as are the handicaps of under-ambition in the other.

It is to be hoped that economic factors deterring parents from supporting their children in higher education will in time be removed. For the very poor, at present, education is a luxury; for the middle classes, it is an essential, for it is education which maintains the middle class children in the middle class.

Surely it must be the aim of the education system to break down the static view of society which prevents the working classes from aspiring to higher status. Several actions must be taken.

1. Careers guidance should be started earlier. Children in the primary school should be made aware of what occupations are open to them.

2. PTAs should be used for similar propaganda purposes, although here we realize the difficulty of getting the lowest classes involved in them.

3. Financial aid must be increased to those in great need, so that the economic deterrent to staying on at school is removed.

4. A more explicit school report should be given, so that the poor parent is made aware of the child's potential. It is likely that many poor parents are unaware of their child's ability in terms of job potential. There is a tendency to clothe school reports in vague terminology.

There is little one can do to improve the home background. The limitations of inadequate conversation, insufficient books, lack of travel and so on cannot be overcome easily. If it can be shown that the comprehensive school system helps to eliminate the difference in attitude, this is a strong argument in its favour.

MODERN AND TRADITIONAL MATHEMATICS TEACHING

G. S. GOPAL RAO, D. M. PENFOLD and A. P. PENFOLD *University of London Institute of Education*

THIRD- and fourth-year secondary school pupils who were following on the one hand 'traditional' or on the other hand 'modern' mathematics courses were tested for a variety of abilities. On four out of five tests of critical thinking and on three out of five tests of creative thinking, the experimental sample—those doing 'modern' mathematics—proved superior.

We offer an account of an experiment which attempted to evaluate the effect of introducing 'modern' mathematics courses in place of the 'traditional' syllabus.

Comparing the effects of different mathematical courses by means of attainment tests which represents a 'highest common factor' in all the courses, may result in a level of sophistication of the testing which is so low that nothing of real importance is compared. What to measure and compare in one course based largely on sets, groups, and matrices, and in another based on traditional algebra, geometry and trigonometry poses an extremely complex problem.

The present study concentrated on measuring broader cognitive effects than mere knowledge of subject matter, and also attitudes which related to both courses. Traditional courses have been criticized because they are said to inculcate skills rather than ideas and ways of thinking intrinsic to mathematics. Yet these ways of thinking are often cited as the reason for retaining mathematics in the general curriculum for all pupils of all levels of ability, since they are implicitly assumed to transfer to other subjects, or more importantly, to the pupils' way of living and general intellectual development. Taba (1962) writes, 'The problem of transfer is central to all education. Since no programme, however thorough, can teach everything, the task of all education is to cause a maximum amount of transfer.' In this study, for reasons now to be discussed, desirable effects are postulated as the abilities to think critically and creatively. Many advocates of change also consider that the newer mathematics course content develops greater interest in the subject than the older course. Papy (1965), for example, claims that modern algebra stimulates interest for the 11- to 18-year-old which may not have existed before. In the cognitive domain, we have, therefore, compared attitudes towards the content of the two courses.

The choice of these particular variables is not based on empirical studies directly concerned with mathematics teaching where the changes taking place have arisen out of the pronouncements of experts, discussions at conferences, external pressures, and the conviction of dedicated individuals. Findings in support of the expectation of benefit to the pupils involved have not been adduced on any scale which can be described as scientifically conclusive. The more cautious appraisals of curriculum reform in mathematics do not deny that traditional mathematics is of value, but suggest that what is needed is not explicitly new work so much as a new approach which, according to Fehr (1955), accepts that the aim of any course must include 'storage of facts and skills' but it must be fulfilled in such a way that it 'can free the mind of routine work and permit it to concentrate on creative learning'. Fehr sees mathematics as a structure of knowledge logically arranged leading to concepts geared for future use and sees as the goal the acquisition of simple, broadly based ideas. The advocates of reform claim that both the methods and content of the new courses are more likely to achieve these aims than the traditional ones. The use of words 'logic' and 'creativity' in Fehr's statements suggest that tests of creative and critical thinking devised by psychometrists might prove useful for the evaluation of differences engendered by the two approaches. Since there are a number of 'projects' of different contents subsumed under the umbrella term 'Modern Mathematics', some detail of the actual work done in the schools concerned with this experiment will be described in due course.

Definitions of critical thinking include: 'The process of evaluating arguments and assessing the way in which conclusions are reached' (The Illinois Curriculum Program, 1954); 'The correct assessing of statements' (Ennis, 1958); 'The process of establishing criteria for judging a statement or product' (De Boer, 1946); 'An ability closely related to problem solving and creative thinking' (Russell, 1962); 'Logical theory' (Hyram 1957); and 'Convergent thinking' (Guilford, 1950). Attempts to teach critical thinking are rather inconclusive in their findings, but progress in the measurement of critical thinking ability has been encouraging. The Watson-Glaser Critical Thinking Test is the best known of the measuring devices. Abou Hatab (1961) considered that certain tests of his own battery were more suitable, partly in that they were adapted for school use, and partly in view of the control which he exercised in the selection of tests highly loaded in the various dimensions of this multi-dimensional ability. Suitable tests from the Abou Hatab study were, therefore, used in the present study.

There is also a plethora of definitions of creative thinking, for example 'divergent thinking' (Guilford); 'a particular type of productive problem-solving' (Fox, 1963), and a full account of these may be found in the recent survey by Freeman, Butcher and Christie (1968). Suggestions that creative thinking is teachable are incorporated in the remarks of Steinberg (1967) that creativity is 'a potentiality given to all human beings at birth but which is often lost or buried or inhibited as the person becomes enculturated'. The same author states that he also regards it as 'an attitude rather than an aptitude, as a cognitive, stylistic or motivational mode of acting with one's environment' which also suggests that it is learnt rather than inherited. It is, however, unfortunately true that older educational practice has tended to emphasize 'convergent thinking' rather than creative thinking. 'Examination of the content of intelligence tests reveals very little that is of an obvious creative nature' (Guilford). Torrance (1962) notes that social science teachers considered divergent mental operation as the least important of five objectives of secondary education. Since the findings of Torrance and Getzels and Jackson (1962) suggest that creativity is not very highly correlated with convergent thinking of the type required in the conventional intelligence test, and thus may be well distributed among children even of average intelligence, it was considered justified to include tests of creativity as though it were a dimension orthogonal to critical thinking in the present study. The tests used were mainly of the type used by Getzels and Jackson, and will be described in detail later. The attitude test was original and of the Thurstone type.

The experiment involved comparison of third- and fourth-year secondary school pupils. Samples comparable in ability doing 'modern' and 'traditional' mathematics courses were made available for testing as follows:

	GIRLS (Two schools, one form from each age group)								BOYS (Two forms from the same age group)	
Numbers Available:	*1st*	*2nd*	*3rd*	*4th*	*1st*	*2nd*	*3rd*	*4th*	*3rd*	*3rd*
	MODERN				TRADITIONAL				MOD.	TRAD.
Creative	—	—	30	30	—	—	29	30	26	26
Critical	—	—	30	30	—	—	29	30	26	26
Attitude	30	30	30	30	30	30	29	30	24	24

There was no evidence to suggest that the samples from either sex differed in ability or background in such a way that they should not be considered as random samples from the same population. The girls' schools were very near together in the same neighbourhood, and the boys' forms were from the same school considered by the headmaster and the senior mathematics master to be parallel. As far as could be ascertained, there were no differences of consequence in the teaching of subjects other than mathematics in the forms to be compared which could account for any major differences in the results of the tests of critical or creative thinking or of attitude test scores. The subsequent analysis was, therefore, to be carried out and interpreted as though the design were a randomized groups design. If there is any reason to doubt the validity of this assumption, perhaps the randomness of initial attitudes of the two groups is most open to question. This will be referred to when conclusions are drawn from the statistical analysis. In the mathematics course in the girls' experimental school, set language was introduced very early. So also was elementary statistics. The rest of the course consisted of multi-base arithmetic; topology; equivalence; vectors; incidence matrices; approximation; further work with union and intersection of sets; linear graphs; simple ideas on probability; Pascal's triangle; modulo arithmetic; polar co-ordinates; transformation geometry; elementary trigonometry; vector geometry; further work in statistics (mean, median, mode; correlation; graphical representation of statistical data); logarithms; use of the slide rule; navigation; latitude and longitude; inequalities; linear programming.

The following tests were used in the investigation:

1. *Abstraction*. The subject is given a series of letters, words or numbers in order. He is expected to find out the relation between them and then put down the required answer.

2. *Analysis of Data*. This is a verbal test of inference. It involves both inductive and deductive reasoning.

3. *Classification and Inference*. This test embodies advanced ideas of the process of classification. It also tests ability to draw inferences.

4. *Sign Changes*. The form of the test is based on one of Guilford's original tests. It is composed of equations in which the values on the left are not the same as those on the right. The problem is to make them correct by suggesting the required interchange of signs.

5. *Symbol Manipulation*. This test is also based on a test originally prepared by Guilford. A statement is followed by several conclusions in which certain letters and symbols whose meanings are given are used. The subject is required to find out whether each of the conclusions is true or false in relation to the main statement.

6. *First and Last Letters*. This test was first suggested by Thurstone. It requires the subject to write as many words as he can in the given time, starting with a given letter or letters and/or ending with a specified letter. It is essentially a test of originality and word fluency.

7. *Uses or Unusual Uses Test*. This is one of Guilford's tests, although several others, including Getzels and Jackson, Torrance, Wallach and Kogan, have used it sometimes in a modified form. The subject is given the name of a common object and asked to list as many uses for it as possible in a given time.

8. *Hidden Words*. The test was devised by Lovell following Oliver and Ferguson's study of rigidity. In the present test a number of hidden words had to be found out. In a similar test (Torrance's) a geometric figure was looked for in a pattern. Here, instead of the visual, the verbal aspect is considered.

9. *Concept Formation*. A group of figures is presented to the subject. The figures are classifiable on two or more mutually exclusive principles or ideas. The subject is asked to find the principles of classification and state them. Changing set is required to shift from one principle to another within each item.

10. *Make Up Problems*. The test consists of three complex paragraphs containing many numerical statements. The subject is asked to use the information in each paragraph to make up as many mathematical problems as he can. The problems must be capable of being solved by use of the material available, although solutions are not asked for.

Table 1: The results of the tests: critical thinking

SL No.		Exptl. Group No.	Exptl. Group Mean	Control Group No.	Control Group Mean	Diffce.	SE$_D$	t
1.	Abstraction	85	16·34	86	14·08	+2·26	0·6668	3·389
2.	Analysis of Data	85	9·88	88	8·31	+1·57	0·5047	3·111
3.	Classification and Inference	85	10·26	84	8·22	+2·04	0·4605	4·430
4.	Sign Changes	85	3·52	88	3·45	+0·07	0·4337	0·1614
5.	Symbol Manipulation	88	9·00	87	7·31	+1·69	0·6569	2·573

Table 2: Results of the tests: creative thinking

SL No.		Exptl. Group No.	Exptl. Group Mean	Control Group No.	Control Group Mean	Diffce.	SE$_D$	t
6.	First and Last Letters	88	22·86	88	21·04	+1·82	1·152	1·580
7.	Uses Test	83	9·98	84	8·29	+1·69	0·8112	2·083
8.	Hidden Words	88	18·50	79	15·58	+2·92	0·9168	3·185
9.	Concept Formation	84	6·79	84	5·63	+1·16	0·5612	2·067
10.	Make Up Problems	85	13·44	86	11·78	+1·66	1·240	1·339

The first five tests in the list above were considered tests of Critical Thinking while the other five were considered to be tests of Creative Thinking.

In the first three tests the differences were all significant at the 0·01 level while in the case of Symbol Manipulation the observed difference was significant at 0·02 level. There were no significant differences in the Sign Changes test. All the observed differences were in favour of the experimental group.

In the three tests, namely Hidden Words, Uses and Concept Formation, the differences, all in favour of the experimental group, were found to be significant at 0·01, 0·02 and 0·05 levels respectively. The differences in the Make Up Problems test and the First and Last Letters test were not significant, although the differences, such as they were, were in favour of the experimental group.

The attitude questionnaire was administered not only to all the pupils who took the tests of creative and critical thinking but also to two additional forms (the first and second) of girls in each of the two schools. The results of the tests were as follows:

	All Forms *N*	All Forms *Mean*	Third and Fourth Year Only *N*	Third and Fourth Year Only *Mean*
Exptl. Group	144	4·721	84	4·587
Control Group	134	4·970	83	4·739

The standard errors of the difference of means were 0·151 and 0·202 respectively. The scores were the result of administering a nine-point Thurstone scale. The control group scored a slightly higher mean, although the difference between the means of the two groups was not significant in either case (t=1·649 and 0·752 respectively).

Since the means of four out of five tests of critical thinking, and three out of five tests of creative thinking differed significantly at the five per cent level in favour of the experimental group, and there were no significant results in favour of the control group, the results were considered fairly impressive. Moreover, in both sets of five tests all differences are in favour of the experimental group, whether significant or not; if the sign test is applied to either set of five, the resulting probability of one in thirty-two that these results could have arisen by chance sampling errors if there were no advantage in using the modern mathematics course is less than 0·05, and is therefore significant.

It will be recalled that it was necessary to make the assumption that the groups were randomly selected. It is possible that this was not valid in the case of attitudes because it was necessary to work with intact groups who had had previous mathematical experience, and some replications would be necessary to uphold the null findings in the case of attitudes. Longitudinal studies of the growth of attitude towards mathematics would be even more convincing.

In interpreting the results it must also be noted that, as well as having a different content, the approach to the learning of mathematics in the modern course was itself different from what it generally is in a traditional class. A great deal of apparatus was used and the children relied very little on any one set of text books. The problem about separating the effects of methodology from content might be solved by careful experimental design, but this may be impossible.

The content of modern mathematics courses seems to lend itself more readily than traditional courses to the *ad hoc* use of the environment and social situations as illustrations, and this again leads to group rather than individual working. When textbooks are available in sufficient numbers for teachers of modern mathematics to be able to choose methods of classroom handling as freely as traditional course teachers are at present, perhaps the question of 'confounding' of method with content can be answered by recording observations made directly in different types of mathematics classrooms.

References

Abou Hatab, F. A. H. (1961). 'The definition and measurement by verbal methods of the ability to think critically'. Unpublished MA thesis, University of London.

De Boer, J. J. (1946). 'Teaching critical reading', *Elem. Eng. Rev.*, **23**, 251-4.

Ennis, R. H. (1958). 'Appraisal of the Watson-Glaser Critical Thinking Test', *J. Educ. Res.*, **52**, 155-8.

Fehr, H. E. (1955). *Teaching High School Mathematics.* Washington National Soc. Educ.

Fox, H. H. (1963). *A Critique on Creativity in Science.* New York: New York University Press.

Freeman, J., Butcher, H. J. and Christie, T. (1968). *Creativity—a Selective Review of Research.* Society for Research into Higher Education Monograph No. 6, London: SRHE.

Getzels, J. W. and Jackson, P. W. (1962). *Creativity and Intelligence.* New York: Wiley.

Guilford, J. P. (1950). 'Creativity', *Amer. Psychol.*, **5**.

Hyram, G. H. (1957). 'Experiment in developing critical thinking in children', *J. Exper. Educ.*, **26**, 125-32.

Papy, G. (1965). *The Place of Geometry in the Mathematics Curriculum.* UNESCO.

Russell, B. (1962). *An Inquiry into Meaning and Truth.* Harmondsworth: Penguin.

Steinberg, L. (1967). Chapter in: Gowan, J. C. *et al. Creativity: its Educational Implications.* New York: Wiley.

Taba, H. (1962). *Curriculum Development, Theory and Practice.* New York: Harcourt, Brace & World.

Torrance, E. P. (1962). *Guiding Creative Talent.* New York: Prentice Hall.

THE RELATIONSHIP OF INTELLIGENCE TO ABILITY IN ART

BRIAN ALLISON *Department of Art Education, Leeds Polytechnic*

THIS IS a short historical review showing how researchers in the early part of this century attempted to define and measure artistic ability and establish a relationship between such ability and general intelligence. The definition of artistic ability was a recurring difficulty which has not, indeed, been satisfactorily settled yet, although the inadequacy of some of the criteria put forward earlier in the century can now be clearly seen. Such criteria were often wholly convergent, requiring pupils to conform to pre-established notions of 'correctness' which now seem inappropriate to the subject.

Since Galton published his *Hereditary Genius* many attempts have been made to determine the relationship between talent in art and other abilities, in particular the intellectual. With the determining of the Intelligence Quotient there was a generally accepted norm with which to try and establish a relationship. The IQ as a measure has achieved considerable stability. Although it has undergone much criticism recently it is still maintained as the most valid measure of intellectual ability or potential. But the measures of what has been termed 'artistic ability' have undergone many changes of fashion, and it is necessary to keep this in mind in the ensuing discussion.

Early in the century, both Kik (1908) and Kerschensteiner (1905) arrived at the conclusion that good intellectual endowment accompanied great talent in art but pointed out that the reverse was not necessarily so. Manuel (1919) arrived at the same conclusion but, with Hollingworth, (1925) felt that exceptional ability in art may sometimes be found in people of very limited intelligence. Terman (1925), however, suggested that the 'exceptional ability' being measured was, in fact, only copying ability and that exceptional ability in any of the arts could never achieve real greatness unless accompanied by superior general intelligence.

Although not claiming to be measuring artistic ability, Goodenough (1926) devised a measure of intelligence with her Draw-a-Man Test, which she claimed correlated highly with the Stanford-Binet and other tests of general intelligence. The Draw-A-Man Test is scored on the inclusion of items within the drawing, the more elaborate the drawing the higher the score. The hypothesis supporting the test is that intelligence is the factor responsible for achieving completeness of the conceptual understanding of a man. In the higher scoring range of the test, there is a score not only for the mere inclusion of an item but also for the way it is pictorially represented. Realism, as a manifestation of visual perception, becomes a scoring factor, and it is probably due to this that the D-A-M-T becomes less and less reliable as the testees approach adolescence. Oakley (1940) and Maitland (1895) also discuss the effect of approaching adolescence on the drawing of the human figure: Oakley refers to the quality of human figure drawing, and Maitland discusses the popularity of the human figure as a chosen subject for drawing.

It appears that drawing as a means of communication declines as children approach adolescence. Read (1958) lends support to this and Lowenfeld (1964) calls it part of the 'crisis of adolescence'. Goodenough considered that children's drawings are a language; not primarily an aesthetic one but one of cognitive expression. If a child draws what he knows rather than what he sees, it should follow that, as the child matures, his drawings increase in complexity and still retain a wholeness about them. The D-A-M-T relies solely on the assumption that drawings demonstrate the development and integration of concepts. Kellmer Pringle and Pickup (1963) made a longitudinal study of thirty-seven children and found the test-retest reliability too low to be regarded as a stable measure of intelligence (0·4) and that the average correlation with the Stanford-Binet and WISC tests (verbal, performance and full scale) was as low as 0·2. They also found that the discriminatory powers of the D-A-M-T between successive years was not entirely satisfactory. Harris (1964) recently revised the Goodenough test, but even so it has suffered considerable adverse criticism.

The notion on which Goodenough based her theory, that a child draws what he knows rather than what he sees, was supported by Burt (1921) when he said that the child:

> '. . . is trying, by his pictures, to communicate, or perhaps merely to express, and sometimes only, it would seem, to catalogue, all that he remembers or all that interests him in the subject to be drawn. He does not pretend to represent that object, as it appears to the eye in a single moment, or from a single point of view.' (p. 349).

The child, Burt suggested, draws 'chiefly from memory and imagination' and it is not until the age of nine or ten that there is 'an effort to portray the external semblance of the object as it is seen by an unsophisticated vision'. More recently, studies in perception, particularly by the Gestalt psychologists such as Arnheim (1954), have shown that this proposition is no longer tenable.

Generally, the pattern has been that the correlations between intelligence and artistic ability, however that has been defined, have been positive ones, with the frequent qualification that, at adolescence, the ability takes on a special character which still correlates positively with intelligence although at a low level. The IQ of the artistically superior was found to be well above average at high school level by Tiebout and Meier (1936). They also found that, while successful artists had superior intelligence, their ranking as artists and their ranking on intelligence were not particularly correlated. The criteria for a 'successful artist' as against 'superior artistic ability' at school level are, of course, very different. In this extensive study the basis for ranking artistic ability was teacher recommendation.

The comprehensive study by Lewerenz (1928) involved almost a thousand subjects in his 'Tests in the Fundamental Abilities in the Visual Arts'. These produced a correlation of only 0·15, which is obviously not educationally significant, between intelligence and art abilities. Lewerenz concluded that anyone who was exceptionally successful in art would probably rank high in an intelligence test but, again, that a high rank in an intelligence test would not necessarily carry with it the probability of success in art. This was really an acceptance of the parity of art with other specialist disciplines: he could have gone on to generalize that anyone who was exceptionally successful in any discipline, whether it was art, music, geology, or something else could also be expected to rank high in intelligence.

In considering the general incidence of high correlation between art abilities and general intelligence in the studies previous to that of Lewerenz, it is important to note what was being included in the umbrella term 'art abilities.' Ayer (1916), finding correlations of 0·49 to 0·80 between art abilities and other school subjects, computed his scores for art abilities from such factors as representative drawing; designing; artistic discrimination; colour washes, shading etc.; attendance; discipline; and vocational interests. Ayer's last four factors would find little place in what Barron (1958) describes as a 'highly creative' or what Burkhart (1962) describes as a 'spontaneous high' talent. In 1916, it seems, you would have had to be both extremely convergent and conforming to qualify for high scores in art.

Bottorf (1946) accepted the point made by Ayer that an assessment of ability in art had to be derived from more than a single test performance, and concluded that 'various art problems seem to call for various abilities'. Five test areas, or 'phases', which she distinguished were:

(a) Construction Problems; in which the chief requirements seemed to be the ability to follow directions and manipulative skill, rather than thinking or making decisions.

(b) Creative Designs; which 'required imagination and originality, thinking and a fine sense of discrimination'.

(c) Perspective Drawing; in which 'facts discovered in one situation had to be applied in an entirely new, although similar, situation'.

(d) Art Appreciation; which depended upon 'power of analysis, critical judgement, and a fine sense of discrimination and feeling'.

(e) Art History; 'almost entirely a recognition of facts and forms previously studied'.

Bottorf found a fairly high degree of correlation between IQ scores (average of high school records and scores on the Otis Self-Administering Test) and all the above 'phases' (+0·39 to +0·52) except phase *(d)*. She also found that, except for art appreciation, phases correlated well with each other and also with success in other school subjects. She concluded that 'with the exception of Art Appreciation, those pupils showing success in one art ability will, with a high degree of certainty, show success in other art abilities'.

The Bottorf criteria for art ability have a great deal in common with the criteria used by Ayer and so it is not surprising that their results were similar. Technical competence was rated highly. For instance, in the construction problem, mechanical accuracy (represented by correct measurement and by fitted and sharp edges and corners) and neatness were emphasized and used as criteria in judging each sample of work. The samples were exercises in simple bookbinding and weaving or cutting letters from squared paper. The criteria for assessing the creative design, as applied to table mats, Christmas cards, decorated capitals, and so on were: 'originality shown, application of design principles and the principles of colour harmony; and conformity to directions (whether unit, border of surface pattern; whether bi-symmetric, occult, triangle or shape given)'. Similar criteria were used for assessing perspective drawing, in which the standards used were: 'the correctness of applying the principles (of linear perspective—elliptical, parallel and angular) to new objects and the difficulty of the drawing'. The art history scores were given in a test of 'identification', based on facts learned in lectures.

In all these assessments, the ability referred to was one of convergence and conformity to precisely what had been taught previously. The tests were really measures of the effectiveness of a particular kind of teaching. It is not surprising that the correlations with the IQ scores were fairly high.

The only test which Bottorf used which seemed to demand judgement and decision was the art appreciation test, in which pupils were asked to grade twelve paintings in order of merit. The order was determined beforehand by the tester and 'in checking the results, two points were given for each correct answer and one point for an answer that varied a grade from the accepted one.' The distribution of the scores for Art Appreciation were 'skewed in a positive manner towards the low scores'. The appreciation, then, was not a personal one but really one of arranging the pictures according to predetermined criteria which had to be remembered. That low scores resulted from the test, along with the low correlation with the IQ scores, points to ineffective teaching. This accounts for Bottorf's plea for 'more time in the art courses to be devoted to the appreciative factors'.

Meier (1939), in considering 'Factors in Artistic Aptitude', concluded that intelligence does not play a predominant part in artistic ability. At about the same time, Eysenck (1940) found that 'intelligence does not play an important part in the ability to appreciate objects of art'. Meier, however, made an important qualification in his conclusion by adding that intelligence 'is a necessary ingredient if success in an art course or profession is aimed at'. This is an interesting qualification and one which is obviously based on the earlier study referred to above. If 'successful' is interpreted as commercially, rather than artistically, successful this conclusion would hardly contradict the findings of Borg (1950) that there was no relationship between success in art and linguistic intelligence. Borg's criteria for success in art was based on college grade scores, and was probably somewhat different from the criteria which, so often, determine commercial success in art.

A corollary to Borg's conclusion is to be found in the results produced by Woods (1948). In his study, artistic interest was related to intelligence and showed, surprisingly enough, a negative correlation. Borg's tests of linguistic intelligence are paralleled by the verbal and computational aspects of the Army Alpha test used by Wood: both rely heavily on the linguistic factor within the field of general intelligence.

It appears, then, that art ability, however it was measured, has little or no correlation with global measures of general intelligence. A stronger relationship has been found between art ability and spatial perception which, as Spearman (1946) noted, was itself a factor contributing to general intelligence.

The Kohs Block Design Test (1923) has been used extensively as a test of spatial perception, amongst other factors, and has shown a correlation with general intelligence (Wechsler, 1944). Burkhart (1958) reported a study by de Wit in which a correlation of 0·606 was produced between the Block Design Test and drawing ability. Unfortunately, the criteria for drawing ability were not reported. While the Block Design Test may be a predictor of ability in art and a parameter for intelligence in a general population, Burkhart believed that it would not be of any value as a measure of intelligence for those with ability in art. The reason he gave for this seeming anomaly was that people with art ability score much higher on this test than other students with equivalent intelligence.

From these researches it can be seen how early attempts to measure artistic ability were inadequate because of the prevalence of a rather rigid notion of what such ability was. Artistic ability indeed, has not been satisfactorily defined. More recently, attention has been directed to the problem of defining a creative or divergent factor within intelligence generally. Hyman (1965) maintained that, because of its sheer multidimensionality, creativity could not be defined. The same may be true of art ability or abilities, although researchers are presently addressing themselves to the problem.

Bibliography

Arnheim, R. (1954). *Art and Visual Perception.* London: Faber.

Ayer, F. C. (1916). *The Psychology of Drawing.* Baltimore: Warwick & York.

Barron, F. (1958). 'The psychology of the imagination', *Scientific American*, September.

Borg, W. R. (1950). 'Some factors relating to art school success', *J. Educ. Res.*, **43**, 376-84.

Bottorf, E. A. (1946). 'A study comparing art abilities and general intelligence', *J. Educ. Psychol.*, **37**, 398-426.

Burkhart, R. C. (1958). 'The relation of intelligence to art ability', *J. Aesthet. & Art Crit.*, **XVII**.

Burkhart, R. C. (1962). *Spontaneous and Deliberate Ways of Learning.* Scranton, Pa.: Internat. Textbook Co.

Burt, C. (1921). *Mental and Scholastic Tests.* London: Staples Press.

Eysenck, H. J. (1940). 'The general factor in aesthetic judgements', *Brit. J. Psychol.*, **31**, 94-102.

Galton, F. (1892). *Hereditary Genius* (2nd ed.). New York: Macmillan.

Goodenough, F. L. (1926). *Measurement of Intelligence by Drawings.* New York: World Book Co.

Harris, D. B. (1963). *Childrens' Drawings as Measures of Intellectual Maturity.* New York: Harcourt Brace & World.

Hollingworth, L. S. (1925). *Special Talents and Defects.* New York: Macmillan.

Hyman, R. (1965). *Creativity and the Prepared Mind.* NAEA Res. Monogr. 1.

Kellmer Pringle, M. L. and Pickup, K. T. (1963). 'The reliability and validity of the Goodenough Draw-a-Man test', *Brit. J. Educ. Psychol.*, **XXXIII**, 3, 299-306.

Kerchensteiner, D. G. (1905). *The Development of Drawing Talent.* Munich: Gruber.

Kik, C. (1908). 'Die ubernormale zeichnerbegabung bei kindern', *Z. Angew. Psychol.*, **2**.

Kohs, S. C. (1923). *Intelligence Measurement.* New York: Macmillan.

Lewerenz, A. S. (1928). 'IQ and ability in art', *School & Soc.*, **27**, 489-90.

Lowenfield, V. and Brittain, L. (1964). *Creative and Mental Growth.* (4th ed.). New York: Macmillan.

Maitland, L. M. (1895). 'What children draw to please themselves', *Inland Educator.*

Manuel, H. T. (1919). *Talent in Drawing.* Illinois: Public School Publ. Co.

Meier, N. C. (1939). 'Factors in artistic aptitude', *Psychol. Monogr.*, **51**, 140-58.

Oakley, C. A. (1940). 'Drawings of a man by adolescents', *Brit. J. Psychol.*, **31**, 37-60.

Read, H. (1958). *Education through Art.* London: Faber.

Smith, I. M. (1964). *Spatial Ability.* London: University of London Press.

Terman, L. M. (1925). *Genetic Studies of Genius, Vol. 1.* Stanford. Stanford University Press.

Tiebout, C. and Meier, N. C. (1936). 'Artistic aptitude and general intelligence', *Psychol. Monogr.*, **48**, 95-125.

Wechsler, D. (1944). *The Measurement of Adult Intelligence.* Baltimore, Md.: Williams & Wilkins.

Woods, W. A. (1948). 'The role of language handicap in the development of artistic interest', *J. Consult. Psychol.*, **12**, 240-5.

CAUTIONARY COMMENTS ON SOME AMERICAN i.t.a. REPORTS

JOHN DOWNING *University of Victoria, British Columbia*

DR. DOWNING takes issue with some American reports on i.t.a. for misrepresenting his own published work on the subject by omitting certain essential qualifications and by associating them with alien implications, such as that i.t.a. is itself a teaching method rather than a vehicle for several alternative possible teaching methods.

The Schools Council's report on i.t.a. (Warburton and Southgate, 1969) includes a review of American and British research on i.t.a. Several of the investigations are criticized rather severely for the 'confounding of materials and media'. That is, the i.t.a. group pupils were taught with one reading scheme and related methods of teaching while the traditional orthography control group pupils were given quite different books and methods. As Warburton and Southgate emphasize, 'No proper conclusion can be made between children learning to read in different media [i.t.a. versus t.o.] if the books and materials are different' (in the two groups). 'It is clearly illogical for i.t.a. invariably to be used with one set of reading materials and t.o. invariably to be used with another set, if we wish to isolate the separate effects of the two media' (p. 257).

In most British experiments this error was avoided (e.g. Downing, 1967; Downing and Jones, 1966). Unfortunately, most American studies fell into the trap (e.g. Fry, 1967; Tanyzer and Alpert, 1967; Mazurkiewicz, 1966a). Regarding such poorly designed studies Warburton and Southgate comment, 'To use different materials for different media is as absurd as comparing tomato soup with mulligatawny and always drowning one with ginger and the other with garlic' (pp. 257-258). But a more serious criticism seems to be suggested in the following quotation from Warburton and Southgate's review for the Schools Council. Of Mazurkiewicz's report they state: 'He entitles his report "Comparison of i.t.a. and t.o. when methodology is controlled". Yet the children in the two groups used different books. His methodology is not controlled at all' (p. 257). This seems to suggest that the title of Mazurkiewicz's article is misleading, and confirms disquiet about other misleading statements which have been noted in some other American i.t.a. research reports. The following review has the purpose of underlining the need for caution in considering certain American publications about i.t.a. research. Three examples are notable:

1. The book, *The Initial Teaching Alphabet and the World of English* is subtitled the 'Proceedings of the Second Annual International Conference on the Initial Teaching Alphabet, August 18-20, 1965' (Mazurkiewicz, 1966b). But it includes an article under the name of the editor, Mazurkiewicz, entitled 'A Summary of British Findings on i.t.a. Use when Materials are Controlled', which was *not*, in fact, part of the conference. However, all the data in Mazurkiewicz's article are traceable to two of my own previous publications. For example, it refers to a test of comprehension which was administered after one and a half years in i.t.a. to i.t.a. pupils and in ordinary spelling to traditional orthography pupils, in the following sentence:

> 'Twenty-seven per cent of the i.t.a. group have scores which would credit them with a "comprehension reading age" of eight years

two months and above on the test, whereas the chronological ages of these i.t.a. pupils were actually between five and one-half and six and three-quarters' (p. 56).

Although its source is not acknowledged by quotation marks or in any other normal way of indicating bibliographical references, this is, word for word, identical with a passage from my (1963) address at the Convention of the International Reading Association at Miami in 1963 *except for two phrases*. The first is the innocuous substitution of 'i.t.a. group' for 'experimental group' in the original paper, but *the second error, an omission, is seriously misleading*. Before the word 'test', the vital words '*the standard edition of*' have been omitted. My original qualification made it clear that these reading ages *would be* credited to the i.t.a. pupils *only if* the standard edition of the test was used. Mazurkiewicz's abbreviated version becomes an impossible claim because i.t.a. norms have not been established for this test.

The results from the records of children's progress through the basic reading scheme also are distorted in Mazurkiewicz's 'summary'. He states 'Children learn to read much more rapidly when they learn Pitman's i.t.a.' (p. 56). This is close to, but again not exactly, what I reported at the Miami IRA Convention. My original statement was:

> '*If these results are confirmed by our later analyses* of the records from the total sample, it will be clear that children can learn to read much more rapidly when their beginning books are printed in Pitman's i.t.a. and hence that *the use of the traditional alphabet and spelling* for beginning reading does seriously retard children's progress into the world of books.'

Mazurkiewicz's abbreviation of this statement is misleading in two ways:

(a) My conditional clause is related to other cautionary statements made in my Miami address (and in other interim reports). For example, the *provisional* nature of the findings was emphasized. This is not mentioned anywhere in Mazurkiewicz's 'summary'.

(b) My research was not concerned with validating Pitman's i.t.a. or any publisher's reading scheme or other teaching materials associated with it. My final sentence, which Mazurkiewicz omits, made it quite clear that the chief aim of the original British i.t.a. experiments was to investigate the effects of the traditional orthography of English. i.t.a. was used merely as an example of *the general principle* of simplifying and regularizing the English writing-system which was contrasted with the greater complexity and irregularity of t.o.

Also, Mazurkiewicz's abbreviations of my original tables are confusing in their results. For example, his very first table is of cumulative percentages, but this is not stated explicitly as it was in the original table in the Miami paper. In the same table the original category 'Beyond Book 5' is re-labelled 't.o.'. This makes nonsense of the results from the control group.

2. Another article by Mazurkiewicz (1966c) also contains passages which are word for word the same as passages in an earlier book by me (1964), but, again, there are no quotation marks or acknowledgements of the original sources. Furthermore, these quotations, unacknowledged at first, but now recognized as such by the Editor, Dr. John Money (1968), are associated with an erroneous description of i.t.a. teaching materials. My original reports carefully pointed out that i.t.a. is not a teaching method but only an alphabet, and that, furthermore, no particular teaching method or reading scheme is associated with i.t.a. In one article published in 1968 I have described *several alternative* methods for teaching i.t.a. But, in an appendix in Money's book, after almost a whole page (p. 365) devoted to the *Early-to-Read* scheme in i.t.a. by Mazurkiewicz and Tanyzer, one British i.t.a. reading scheme is given two and a half lines, so placed and presented that one might see its books as only supplementary readers for the *Early-to-Read* scheme, whereas in fact, it constitutes an entirely separate scheme written before the *Early-to-Read* series was contemplated, and based on a very different educational theory.

Mazurkiewicz's curious description of i.t.a. materials is perhaps further confounded by his use of the style 'i/t/a' all the way through his article instead of the normal 'i.t.a.', because the former is rather similar to the trademark 'i/t/a' of the publisher of his own *Early-to-Read* series.

3. Another source of error is the published version of a report of the very first experimental introduction of i.t.a. into America. Mrs. Anita Metzger studied i.t.a. in England in the autumn of 1962, and began the first American i.t.a. experiment at her private school at Ventnor, New Jersey, in January 1963. She used the only i.t.a. books available at that time—the *Janet and John* i.t.a. reading scheme.

Mrs. Metzger wrote a report of her i.t.a. experiment, and sent a copy of her manuscript to the Reading Research Unit in London at the same time as she submitted it to *The i/t/a Bulletin*, a magazine produced by the publishers of Mazurkiewicz's and Tanyzer's *Early-to-Read* series. Her original report states that there were 'at that time no (i.t.a.) publications available in the United States', but Mrs. Metzger's report appears to have undergone some transformation because *The i/t/a Bulletin's* version states that Mrs. Metzger's pupils were 'reading through Book 4 in Pitman's *Early-to-Read* series by Mazurkiewicz and Tanyzer before the Christmas holidays.' (The *Early-to-Read* series had not, in fact even been written at the time of Mrs. Metzger's experiment.)

In another passage, Mrs. Metzger's manuscript states that a second experimental i.t.a. class was then 'reading the i.t.a. Book 1. We are confident the same rich experience will be repeated with each incoming group.' No particular reading scheme was mentioned in her original manuscript because Mrs. Metzger was concerned with the effects of the i.t.a. *alphabet* in general and not the promotion of any particular i.t.a. reading scheme. In fact this group of pupils, too, used the *Janet and John* i.t.a. scheme, but *The i/t/a Bulletin* states '[They] are now beginning the Pitman i/t/a *Early-to-Read* series. By December, the children had a reading and writing knowledge of about 60 words. Shortly after Christmas, they completed the first reader in the i/t/a *Early-to-Read* series.' Again, it should be noted that those materials were not then published, and never were used in the experiment conducted and reported by Mrs. Metzger in her own school.

Bibliography

Downing, J. (1963). 'Experiments with Pitman's initial teaching alphabet in British schools'. In: Figurel, J. A., ed. *Reading as an Intellectual Activity*. New York: Scholastic Magazines.

Downing, J. (1964). *The i.t.a. Reading Experiment*. London: Evans Bros., Chicago: Scott, Foresman.

Downing, J. (1967). *Evaluating the Initial Teaching Alphabet*. London: Cassell.

Downing, J. (1968). 'Alternative Teaching Methods in i.t.a.', *Elementary English*, **45**, 942-51.

Downing, J. and Jones, B. (1966). 'Some problems of evaluating i.t.a.: a second experiment', *Educ. Res.*, **8**, 100-14.

Fry, E. (1967). 'The diacritical marking system and a preliminary comparison with i.t.a.' In: Downing, J. and Brown, A. L., eds. *The Second International Reading Symposium*. London: Cassell.

Mazurkiewicz, A. J. (1966a). 'i.t.a. and t.o. reading when methodology is controlled', *Reading Teacher*, **19**, 606-11

Mazurkiewicz, A. J. ed. (1966b). *The Initial Teaching Alphabet and the World of English*. Hempstead, New York: i.t.a. Foundation.

Mazurkiewicz, A. J. (1966c). 'The initial teaching alphabet (i/t/a)'. In: Money, J. ed. *The Disabled Reader* Baltimore: Johns Hopkins Press.

Money, J. (1968). Personal communication.

Tanyzer, H. J. and Alpert, H. (1967). 'Three different basal reading schemes and first grade reading achievement', *Reading Teacher*, **19**, 636-43.

Warburton, F. W. and Southgate, V. (1969). *i.t.a.: An Independent Evaluation*. Edinburgh: Chambers and Murray.

BIG WORDS BOTHER ME

R. BISHOP *The Technical High School, Slough*

THIS article is concerned with the rate at which pupils can absorb new vocabulary. The author describes how he set about measuring rates of absorption, and comes to some thought-provoking conclusions. It is suspected that vocabulary of boys is larger than that of girls, in spite of girls' greater reading, because of the wider variety of experience permitted to boys. An intriguing section of the article reproduces some of the more creative howlers encountered in the course of the investigation. The final tentative conclusion, put forward for verification rather than as a proven fact, is that even clever children are capable of absorbing not more than 10 new words per week.

The chemistry man (who was new to the staff and had only just returned to England after a stint in the hill-tracts of North India) kept telling us that our attitude to the 11-plus intake was all wrong. His theory was quite simple.

'When these children come to us,' he said, 'we all take it for granted that they are already familiar with the vocabulary that we use and this is simply not true. What is more, it is fatal to overload children with new words. When I was in India, we discovered that if you were trying to teach a boy English and you gave him 40 new words a week to learn, he might learn them. If, however, you gave him 45 a week, he never learnt more than 35, however bright he might be. Yet how many words do we expect our first years to absorb weekly in English, History, Science, Maths and the rest? We all throw words at them, new words, and become angry when they misuse them, but no one really knows what their vocabulary absorption rate is, because'—and here he paused impressively (he was always pausing impressively)—'no one has taken the trouble to find out.'

That was in the autumn term. However, towards the end of the summer term I found a small first-year girl nursing an enormous tome of the Enc. Brit. and solemnly reading the article headed Biography because, she said, it was one of her school subjects. She was, alas, not one of the brightest of her year, but, even so, after two and a half terms to confuse Biology with Biography gave pause for thought. Thereafter I was hooked. The chemistry man must be right. I made inquiries. 'Oh yes,' he said, 'there is a method of testing vocabulary absorption rates'.

Method

Take a dictionary.

Open it at the first page.

Toss a coin to see whether you take the first or the second column.

Think of a number between one and twelve.

Toss a coin whether you count up or down.

Count up (or down) the selected number, and there is your first word.

If the dictionary has 300 pages, every third page will give you a word and bring you to 100 words chosen at random. This method produces tests of approximately equal merit.

I constructed seventeen tests using the above method and McDougal's Etymological Dictionary (School Edition). Each test contained 100 words similar to the sample that follows: allowance, choral, daub, divest, develop, fumigate, obscure, sane, tatting, vituperation.

Snags

It all seemed reasonably simple and I concocted (and I use the word advisedly) my first test in October 1959 for the first and second-year students and followed this with further tests at roughly six-monthly intervals until 1967.

But there were snags.

In the first place McDougal's dictionary lists an unconscionable number of words (chiefly adjectives) beginning with in- and slightly more beginning with un-. It merely lists them. Page 104 and pages 227–228 print many more words than there are on a normal page. What was I to do? I followed my usual practice of picking out the words that fell to the agreed count, 5th up to 10th down, but I am still not certain that this was the right thing to do. Certainly when I came to the last two sections of the dictionary headed 'Some Current Words and Phrases' and 'Classical and Foreign Words and Phrases' I did not hesitate to move up or down one or two places to find a word that I thought some at least of the students ought to recognize.[1] Cheating?

Strictly speaking I ought to have had access to the IQs of those taking the tests and I suggested several times that it would be useful to compare the IQ with the vocabulary rating, but asking for IQs ten years ago was like asking a bank manager to disclose the accounts of his clients. Yet I have a suspicion that there may be some children with a comparatively low IQ and a fairly high vocabulary rating, simply because they have a love for words or because their home background exposes them to a wider range than that of their fellows. Alternatively, a low vocabulary rating might quite simply be due to emotional difficulties. In the six years of the tests I found three boys who never scored more than 20 and sometimes considerably less, however many tests they tried, because they were fundamentally disturbed. Their marks were not disclosed to the unkind eyes of their peers and usually after two or three tests I asked them if they wished to continue. All three eventually refused. Whether it was right to omit their scores from the class totals, I do not know, but that is what I did.

It was all but impossible to give the same vocabulary test to the whole school in one day at the peak period of the tests and some of the boys (but not, I think, the girls) tried to discover more difficult words that were coming up so that they could make a sly dip into a dictionary in the hope of achieving a better mark. This, of course, defeats the whole purpose of the test and may have affected the final percentages by an odd 0·05 per cent, but not, I think, by more. A curse on our encouragement of the competitive spirit in the young. Girls occasionally copy serenely from one another, usually to the detriment of both.

After a time it became fairly evident that, in spite of random selection, the tests are not all of equal merit, though fairly near each other in standards of difficulty. The real snag was Test No. 11. On the surface this selection appeared to be no more difficult than the others. In practice it proved very different. But by the time I had marked 850 papers or thereabouts and compared the results with previous tests, it was far too late in the term to attempt to undo No. 11's sad treachery by setting and marking another question paper.

Tentative conclusions

1. Boys have a larger vocabulary than girls. Yet on the whole girls do much more reading than boys—and reading is supposed to widen one's vocabulary. Why then the difference? It is simply, I think, that boys are allowed much more freedom than girls and are therefore open to a greater variety of experiences. To the question, 'What did you do over the weekend?' a boy of 12 once replied, 'I went to Doncaster on a train-spotters' outing'. I was a little surprised since a round trip of some 400 miles in one day is no light undertaking for a boy, but I should have been absolutely staggered if a girl of that age had made a similar claim.

2. I am no statistician, but I have an unhappy feeling that all children pick up as many words (if not more words) between May and October when they have the long summer holiday as they do between October and May when the teaching process is more intense. The reason given in the previous paragraph may account for this.

---

[1] Detailed tables giving mean scores for boys and girls separately for each test on each occasion it was administered were prepared and these conclusions drawn from them. The conclusions can only be tentative since no variances were calculated and therefore no statistical tests could be carried out.—*Ed.*

3. Perhaps I ought to have expected it, but I was surprised that successive tests did not show a steady upward trend, either individually or collectively, except for the 1962 entry, when both boys and girls fulfilled my expectations. The inequality of the tests may account for this.

4. Students between the ages of 11 and 18 may be expected to double their vocabulary, if they work reasonably well. Some may begin with a very high mark and, as they become discouraged or disillusioned with school or entangled in home problems which are far too big for them to cope with, they may never rise much above the score at the end of the second year.

Howlers

Though I cursed the chemistry man often enough once I started and heartily wished that he had never left his hill-tracts, marking the papers did have its moments, as the following selection of errors will show:

acidity: not on purpose;
adulteration: strict parents;
belie: a French dancing part; to throw a rope; the stomach;
fumigate: to stink the place out;
hymnology: a study of marriage;
negroid: having skin trouble;
paddock: a kennel for a horse; a place where hores are kept;
sane: able to appear on a murder charge;
devotee: to stop voting;
cloister: a congregation of oysters;
carpet-knight: a hoover;
discredit: to buy an object, not knowing it does not fit, and taking it back having to buy something dearer; an amount taken out of the bank;
quadrant: the fifth child of four born all at once;
tutelary: French for on the flute;
abduct: a passage for food;
deft: stupid (Liverpool); a new washing powder;
highwayman: a hitch-hiker; a policeman on the roads;
malignant: a person who answers back;
parasite: someone who lives in Paris; a landing place for parachutes; a kind of umbrella; a Christian; an icicle growing upwards;
puce: a peace between two fights;
roster: a policeman; a chicken that sits on other birds' eggs;
virginity: something to do with the verge in Mary;
wicket: a goal scored in cricket;
eider: this side or that;
tactician: a tit-tat man;
amphibious: wanting to get on;
tendency: to be hardly ever at school or anywhere else;
pallid: friends for life;
hoof: the bottom of a cow's legs;
macaroni: a famous inventor; a food that looks like drain pipes.

Marking

Taking any one meaning of the given word, one mark was given for a correct answer and half a mark for getting the connection. No marks were deducted for spelling or grammatical errors.

For example, half a mark for 'fumigate—to stink the place out' because the student, while apparently having no notion of the real purpose of fumigation did have a very clear impression of its side effects.

Half a mark for 'hoof—the bottom of a cow's legs'.

No mark for 'negroid—having skin trouble'.

A full mark for 'sane—able to appear on a murder charge' because it is a most noble effort by a 12-year-old to pin down the word.

So long as students work steadily through the list from No. 1 onwards it is possible to percentage their scores, even if they do not finish the whole test.

I have written this article in the hope that someone or preferably some group will undertake a much larger and more rigorous survey along similar lines. Mine was a one-man amateur essay, full, no doubt, of unwitting error and conducted in a technical high school where the pupils come from a somewhat narrow social stratum. For the most part they are the offspring of clever artisans, the children of professional men and women rarely appearing among us. Results of similar tests taken in schools with a different sort of intake might well prove very different.

BOOK REVIEWS

Half Way There—Report on the British Comprehensive School Reform
by Caroline Benn and Brian Simon. McGraw-Hill, 1970, pp. 437. Price 60s.

This report is a mine of information on comprehensive education in Great Britain in the late 1960's, and essential reading for research workers and educational planners. It is not a book to read straight through—it is rather a work of general reference.

The authors have carried out their own survey of the 958 schools identified as, or calling themselves, comprehensive in 1968; 728 of the questionnaires were later used for analysis. In addition 44 of these schools answered a supplementary questionnaire and visits were made to a further 17. Their own statistical survey, similar in content and design to the one carried out by the National Foundation for Educational Research two years earlier, allows comparisons to be made which show the general way comprehensive education is developing. The sources of reference are extensive and listed at the end of each chapter.

The coverage of the book is wide and many of the sections are very detailed. For instance, the first section on the background of the reform gives the history of the trend towards comprehensive secondary education, describes systems and changes in other countries, and in giving an account of the re-organization in this country, recounts details of the changes made by many individual authorities. The description of comprehensive schools in Britain as they are today is divided into four main sections: 'Schemes and Schools'; 'Internal Organization: Teaching and Learning'; 'The Comprehensive School as a Community'; and 'The Comprehensive Schools in the Community'.

We are told that the number of comprehensive schools is growing rapidly; that the peak of the increase was during 1967/68; that at the start of 1970 there were over 1,300 such schools responsible for educating about one-third of the pupils of secondary school age in Great Britain, but that if the definition of a comprehensive school is restricted to those only in areas where selection has been abolished the proportion falls to ten per cent or less; that most literature about comprehensive schools refers to all-through 11-18 schools, although this no longer represents the types of school as they exist today.

Twenty-nine recommendations are made in the concluding section: these vary from '. . . . a clear and positive decision be taken in favour of a comprehensive system up to the age of 18 years and that legislation to implement this decision be introduced' to 'There must be regular and full research into comprehensive education itself and the popularization of results'. While many will welcome this book written by those committed to the promotion of secondary reorganization, others will criticize it as biased, will question the evidence on which the recommendations are made and the selection of information to support the arguments.

It is perhaps the overwhelming desire to see re-organization carried through as swiftly as possible that prompts the authors to attack the Department of Education and Science and the National Foundation for Educational Research for failing to give a decisive lead on the many decisions that must be made in the change to a comprehensive system, yet the NFER's brief for their original (1966) survey was 'that the facts about comprehensive schools should be ascertained'. Only later was an attempt at evaluation to be made. Procrastinators and antagonists are more likely to be persuaded that the abolition of all selection in education is desirable, by clear and balanced argument based on fact, than by the recommendations of a pressure group.

Undoubtedly, this is an important book which will be consulted for many years to come. It is disappointing, therefore, that it should be presented in such a flimsy binding.

J. M. Ross

Guidance and Counselling in British Schools

edited by H. Lytton and M. Craft. Edward Arnold, 1969, pp. 112. Price 18s.

The present volume, small though it is, is a welcome addition to a sparse and rather unsubstantial literature on school guidance and counselling in this country, especially so since it includes contributions from a number of the people who have been most closely associated with developments in counselling and actively involved in the training of counsellors during the last decade. The papers were first presented at a conference at Exeter University in 1968. Each of the four sections into which they are grouped, The Social Context, The Counsellors and the School, The Counsellor and Outside Agencies, and Perspectives on Counselling, has been supplemented by a short and useful critical comment.

What has come to be known as the Holy Trinity of guidance—educational vocational, personal—is examined from the standpoint of the educational administrator, the head teacher, the counsellor educator, the child guidance clinic psychiatrist and psychologist, the academic psychologist and the careers officer (Youth Employment Service). A worthwhile basis for clarifying roles and functions emerges from the discussion. However, it will be regarded as a shortcoming by many that there is no actual contribution from a practising counsellor, notwithstanding the direct experience of the contributors with problems and issues of school guidance and counselling, and the fact that this particular point is met in some degree by James Gill in the penultimate chapter of the book. With the backing of counsellors who attended the conference, he has effectively summarized some of the more important practical and ethical issues encountered by guidance specialists in their work. Readers more closely concerned with what the counsellor actually does may find it useful to begin with this chapter.

Maurice Craft poses one of the most important difficulties with which counsellors are confronted—the extent to which it is possible to reconcile, for the developing child, a liberal approach to life-patterning which encourages maximum self-development with society's utilitarian demands for various types of professional and technical man-power, or in other words, the sheer economic necessity for a suitable return from its investment in education.

It is no more than a short step from questions of educational investment to the problem of evaluating guidance and counselling techniques and services, an issue which raises its head on a number of occasions in the text. Many LEAs and head teachers are sceptical of the value of counselling and feel that they must have more substantial evidence and satisfactory measures of the effectiveness of this work before they commit resources to it. This book will show the sceptics that counsellors and the protagonists of counselling, are well aware of the need for proper evaluation. Unfortunately counsellors and schools generally are lacking in time and resources necessary for conducting evaluation studies alongside their existing commitments to the practical issues of guidance. The moral would seem to be that if counselling is to have a basis other than that which has to rely on faith, and one which is acceptable to economists and administrators, it will be necessary to have some application of resources to the process of evaluation itself.

B. M. Moore

Reading—Which Approach?

by Vera Southgate and G. R. Roberts. University of London Press, 1970, pp. 215. Price 23s. (£1·15).

This interesting book provides worth-while reading for teachers and researchers. For teachers, it gives a detailed and systematic account of how they might, by themselves, or with colleagues, evaluate different approaches to the teaching of reading: there is good material here for the keen warden of a teachers' centre who wants to initiate a programme for teachers of five- to eight-year-olds. To illustrate their recommended system of evaluation, the authors devote half the book (Part III) to its application to nine current reading approaches: three look-and-say approaches

(Queensway, Key Words and Time for Reading), three phonic approaches (Royce Road, Stott's Kit, Fun with Phonics), and Cattegno's Words in Colour, Jones's Colour Story Reading and Pitman's i.t.a. medium. They succeed admirably in promoting the view that teachers of infants, juniors, and secondary retarded readers should have a critical and extensive knowledge of different approaches. It is indicative of the situation in teacher training that their outlook should seem so revolutionary, and that they should find it necessary to write at a level which frequently seems so elementary. Yet their down-to-earth approach is surely what is needed as the growing demand for improvements in pre-service and in-service training is recognized and met.

The book, and especially Part III, should be read by all engaged in reading research because it describes with refreshing thoroughness some of the practical classroom considerations that should be taken into account in the development of theory and practice. Southgate and Roberts have much to contribute to current discussions about teacher effectiveness; they also succeed in illuminating some of the theoretical issues about the use of i.t.a., or about research design, by their detailed analysis of the nine different teaching approaches: in this respect, researchers can be just as narrow and parochial as teachers, but perusal of pages 101 to 189 should jolt many an 'expert' into seeing the teacher's task in broader terms than his favourite theory would prescribe!

Having complimented the authors on their detailed treatment of nine reading approaches, for writing a book which is developmental in a progressive sense, and for having their feet in the classroom, one must express some reservations, however.

First, is it fair or adequate to be so selective in the approaches that are detailed? Since in many areas, teachers use one or two reading schemes only, one might have expected the authors to have included a critical examination of approaches based on these schemes. *Janet and John* is used by 81 per cent of schools, according to a recent survey by Goodacre (1969) yet it is not detailed by Southgate and Roberts. Further, they discuss only one of the other schemes currently popular today: *Happy Venture* (38 per cent schools); *Happy Trio* (37 per cent schools); *Ladybird* (37 per cent schools); *Gay Way* (33 per cent schools); *Beacon* 31 per cent schools); *McKee* (31 per cent schools). It is true that these schemes are all similar in approach, and might be said to be represented by some approaches chosen by the authors, but surely teachers should start by evaluating the approaches they are *using*.

There is another notable omission in this book. There is no attempt to discuss or detail an approach based on research in the area of psycholinguistics, emphasizing the development of language rather than the analysis of reading as a skill. The Schools Council project, *Breakthrough to Literacy*, is an approach of this kind, and surely deserved a section of its own. Although Southgate and Roberts have published their book simultaneously with the work of David Mackay, Brian Thompson and Pamela Schaub (1970), they must have known of this development and could have presented sufficient information to give the reader a chance to take this important approach into account.

Secondly, Part Two of the book, 'Criteria for Assessing Reading Approaches', is so over-simplified, and often so obvious, that one wonders how useful it can be to teachers. It might have been better to condense it to a few pages rather than give the impression that this is all there is to think about in evaluating reading approaches. However, the authors do give some useful references for further study.

Vera Southgate is a respected researcher, and her work on the evaluation of the i.t.a. medium (Warburton and Southgate, 1969), deserves to be read as a companion volume to the work being reviewed. I would support her formulae for reading progress presented in a recent article in *Educational Research* (Southgate, 1970), especially the emphasis she places on reading drive and teaching competence.

It is difficult therefore to understand why the teacher is advised in the book to make a choice first 'between two main beliefs about how children may best be helped to learn to read'. This seems to place too much emphasis on stereotyped teaching styles, and to accept too easily a classification of reading approaches that occurs in published school books. While most harassed teachers welcome easily applied approaches, they also appreciate the opportunity to consider professional knowledge and experience about these approaches. As Southgate says, experimental evaluation of teaching methods using controls have seldom been successful. But this does not mean that the teacher has no alternative but to choose one or other of the 'package deals' on the basis of belief alone.

In spite of these reservations, I would warmly recommend this book to all who are professionally concerned with the teaching of reading. It has much wisdom to offer and plenty of good advice to give.

BRIAN CANE

References

GOODACRE, E. J. (1969). 'Published reading schemes', *Educ. Res.*, **12**, 1, p. 30.

SOUTHGATE, V. (1969). 'Formula for beginning reading tuition', *Educ. Res.*, **11**, 1, p. 23.

MACKAY, D., THOMPSON, B. and SCHAUB, P. (1970). *Breakthrough to Literacy*. (Teacher's Manual). London: Longmans for the Schools Council.

Expectation and Pupil Performance

by DOUGLAS A. PIDGEON. NFER, 1970. Price 30s. (By post 31s. 6d.)

'ANYONE who has had much to do with people born before the First World War will agree that a large proportion of them have assumed throughout life that only a restricted range of opportunities in learning and living ever lay open to them . . . Such self-exclusion is one of the most prevalent and regrettable concomitants of education in many parts of the world. People do not know "they have it in them".' The quotation is not from Dr. Pidgeon's book but from E. King's *World Perspectives in Education*. Many writers recently have extended King's observation to apply to children in school. The sociologists write of the *self-concept* and *role-perception* as important factors in a child's school performance, and there is considerable psychological evidence on the influence of *level of aspiration*, *motivation*, *attitude* and *set*. A title such as that of Dr. Pidgeon's book will command immediate interest and raise the hopes of teachers for a comprehensive review of this rapidly developing field of research. Do teachers' expectations really affect the level of performance of their pupils? And what of the expectations of parents, and of peers, and of the pupil himself?

The danger is that the readers' expectations, from the title of the book and from the titles of the chapters, may lead to the wrong attitude to the substance of the book itself. For the book deals with only a limited area of the topic. The review of previous research, in the first 40 pages, is concerned mainly with the heredity-environment controversy in relation to intelligence, and the seven chapters which follow are detailed accounts of research studies carried out by Dr. Pidgeon, sound and precise but each centred on the testing of a specific hypothesis. Chapter 2, 'The influence of cultural factors' compares test scores of European, Indian and African children in Natal. 'The influence of home encouragement', Chapter 3, compares the test scores of boarding and day pupils in independent schools. 'The influence of the general atmosphere of the school' is an ingenious investigation, contrasting pupils held back in primary school with others transferred to secondary modern schools. 'The influence of curriculum factors' shows how scores on a test given to English, Australian and Californian pupils were affected by differences in their curricula. 'Factors influencing teacher expectations' deals with the season of a child's birth and the length of his schooling. 'Pupil expectations and aspirations' compares the jobs pupils say they desire, those they expect and those of their fathers. 'The effects of teacher expectations' reviews the effects of streaming and demonstrates that countries which adopt streaming tended to show a wider dispersion of scores in an international research study. Each of these chapters is a model of reasoning and statistical analysis, lucidly written and well argued, but on a more limited aspect than one is led to expect from the title.

The author's own summary, in Chapter 9, makes only a modest claim. 'A number of separate empirical studies carried out by the author have been reported. The one common factor among them is that they demonstrate how various environmental factors influence school performance by helping to determine the views that both teachers and pupils come to hold of what that performance should be. Each study, it is hoped, provides some evidence to support the view put forward that the factors which motivate pupils to learn, are certainly of no less importance in influencing school achievement, than the pupils' inherited ability.' In short, this is a most valuable book for the research library, but is unlikely to persuade the teacher who holds firmly to the view that one cannot make a silk purse out of a sow's ear. A reader's response is also affected by his expectations.

JOHN NISBET

NFER PUBLISHING: *Change of Address*

The Foundation's newly established Book Publishing Division has moved to Windsor, and all inquiries and orders for books published by the NFER should be sent to the address below:

The National Foundation for Educational
Research (Book Publishing Division),
2 Jennings Buildings,
Thames Avenue,
Windsor, Berks., SL4 1QS.

Subscription orders and renewal subscriptions for *Educational Research* should continue to be forwarded to the distributors: King, Thorne & Stace Ltd. (*Educational Research* Dept.), Kingthorne House, School Road, Hove, Sussex, BN3 5JE.

Discounts. Special discount rates are available for *bulk* orders for *Educational Research* from LEAs, Institutes and Colleges, but members of the teachers' associations are asked to note that the discounts available on NFER books do not apply to individual subscriptions for the journal.

NFER Publishing Division

EDUCATIONAL RESEARCH METHODS

J. D. Nisbet and N. J. Entwistle

This book describes, in a practical and straightforward manner, the techniques of educational research in a range of fields including surveys, prediction studies, and curriculum development. In each area the techniques are explained in detail and specific problems of method and of interpretation of results are discussed in full.

Boards Edition 38/- net

Unibook Paperback Edition 21/- net

UNDERSTANDING RESEARCH IN EDUCATION

K. Lovell and K. S. Lawson

The aim of this work is to help teachers and students to understand some of the methods used in educational research and to enable them to read reports of research with judgement and appreciation. It assumes little knowledge of statistics in the reader, and is written clearly and without jargon.

Boards Edition 34/- net

Unibook Paperback Edition 18/- net

EDUCATIONAL RESEARCH IN BRITAIN 2

Edited by H. J. Butcher and H. B. Pont

This book – a companion to *Educational Research in Britain 1* (paper 45/- net) published in 1968 – comprises fifteen more papers on recent educational research. It includes a comprehensive bibliography grouped under subject headings.

Boards 65/- net

For inspection copies of the above books, please write to:

UNIVERSITY OF LONDON PRESS LTD

Dept P 412 St. Paul's House Warwick Lane London EC4

THE OPEN CLASSROOM

A Practical Guide to a New Way of Teaching

HERBERT R. KOHL

Teachers will find this book challenging – sometimes painful – and heartening. Mr Kohl shows how in practical terms teachers can work in 'non-authoritarian' classrooms, even if surrounded by colleagues who disapprove of an 'open' approach to children. 65,000 copies have already been sold in America.

25s Education Paperback: 12s

ARTS *v.* SCIENCE

Edited by ALAN S. C. ROSS

Contributions, in the light of modern thought, from teachers in both 'cultures', directed towards the solution of the conflict between the Arts and the Sciences.

Education Paperback: 16s

EDUCATION IN THE 1970s AND 1980s

Edited by W. J. FENLEY

The contributors to this book explore some of the problems that Australian education must face in the future, and some of the new ideas it will have to accommodate.

Hicks Smith & Sons Paperback: 25s

ON HELPING THE DYSLEXIC CHILD

T. R. MILES

Methuen Educational

21s Education Paperback: 12s 5d

METHUEN

Hightown Grammar
The school as a social system

C. LACEY

A detailed case-study of the progress of one class through a northern grammar school, emphasizing the relative lack of achievement by working-class children and the rejection of school values in favour of non-academic alternatives. *55s (£2.75) net*

Reshaping Physical Education

MARGARETE STREICHER

Edited and presented by Betty E. Strutt, this book, by one of the world's leading educationalists, shows how P.E. can be integrated with education as a whole and related to the complete development of the child.

Illustrated *36s (£1.80) net*

MANCHESTER UNIVERSITY PRESS

The Appraisal of Intelligence

A. W. HEIM

This important book by the well-known authority on intelligence testing has now been reprinted in a revised edition by the NFER. Dr. Heim discusses the feasibility of assessing 'intelligence' while its definition is a matter of controversy, and the importance in its development of environment and heredity is unclear. She describes the influences to be taken into account when devising and using psychological tests, and criticizes the factor analysis approach. In the last few chapters, Dr. Heim elaborates her own definition of intelligence and makes practical recommendations for further research.

Price 25s. (£1·25). By Post 26s. 6d.

NFER Publishing Division,
2 Jennings Buildings, Thames Ave.
Windsor, Berks., SL4 1QS.

The British Journal of Educational Psychology

Vol. 40, Part 2 — *Editor:* Professor J. D. NISBET — June 1970

S. Sandels. Sweden: Young Children in Traffic.

H. J. Eysenck and D. Cookson, London: Personality in Primary School Children: 3. Family Background.

N. J. Entwistle and D. Entwistle, Lancaster: The Relationships between Personality, Study Methods and Academic Performance.

A. Smithers and A. Batcock, Bradford: Success and Failure among Social Scientists and Health Scientists at a Technological University.

R. E. McHenry, Oxford, and G. A. Shouksmith, Belfast: Creativity, Visual Imagination and Suggestibility: their Relationship in a Group of Ten-year-old Children.

R. R. Eifermann, Israel: Level of Children's Play as Expressed in Group Size.

W. D. Hine, Manchester: A Study of the Abilities of Partially Hearing Children.

D. M. McIntosh and D. A. Walker, Edinburgh: The 'O' Grade of the Scottish Certificate of Education.

D. H. Bray: Extent of Future Time Orientation: a Cross-ethnic Study among New Zealand Adolescents.

Research Notes by E. A. Trown, Loughborough; J. Payne *et al*, Sussex; D. Gath *et al*, Oxford.

Theses Abstracts and Book Reviews

The Journal is published three times yearly. The subscription is £4 a year post free, payable in advance, or £1 10s. each number. Subscriptions and Orders should be sent to:

THE MANAGER, B.J.E.P. DEPARTMENT, ASSOCIATED BOOK PUBLISHERS LTD.,
NORTH WAY, ANDOVER, HANTS.

NFER

COMPUTER SERVICE

The National Foundation for Educational Research has now installed its own computer—an IBM 1130.

We anticipate a certain amount of spare time in the next year or so, and are prepared to make the computer available to Educational Research Workers at favourable rates.

Card-punching will also be undertaken, at competitive rates.

Details

At present the capacity of the 1130 is limited—maximum size of matrix is 30 × 30. But for individual researchers who have no access to other computers and who wish, for example, to calculate tabulations, regression analysis, correlations, factor analysis, and analysis of variance within these limits, this service is of great value.

Rates

Computer: £15 per hour.

Data Processing: £20 per 1,000 cards.
Punched and Verified.

Specimen Costs:
Regression analysis of 8 variables on 40 subjects—£4: 15 tables from 2,600 subjects—£9.

Telephone Slough 28272, or write to
A. N. James,
NFER, The Mere, Upton Park, Slough, Bucks.

Comprehensive Education in Action

edited by T. G. MONKS

This is a unique book on comprehensive education—unique not only because it reports research into some hitherto uncharted areas of school life but also because of the thoroughness of much of the work. It is particularly welcome at this time of change and flux in secondary education.

Six different aspects of the life and work of teachers and pupils, chosen for their pertinence to a developing system of non-selective secondary education, have been investigated. These are: school administration; curriculum and welfare; attainments; friendships; extra-curricular activities and contacts between the school and the community.

50s. (£2·50) in UK only. By post 52s.

NFER Publishing Division

Problems of Overseas Students and Nurses

AMYA SEN

Little is known about the progress made by the thousands of overseas students in this country, but their studies may be of crucial importance to their own and their home countries' development.

Dr. Sen has studied a large sample of students and nurses in colleges of education, universities, hospitals, specialist nursing colleges and many other kinds of institution, and has provided a clear factual picture of the nature of their difficulties. Also included here are a report on the sample's English proficiency, a follow-up of their performance and the author's recommendations for reducing the severe handicaps under which these foreign and Commonwealth students are shown sometimes to be labouring.

50s. (£2·50) in UK only. By post 52s.

NFER Publishing Division

Gap Reading Comprehension Tests

J. McLeod

Head of the Department of Special Education and Director of the Institute for Child Guidance and Development, University of Saskatchewan.

This extensively validated new test of children's reading ability comprises a graded series of passages in which random blanks are left for the child to complete. The accompanying manual (the U.K. edition of which was prepared by Derick Unwin, Senior Lecturer in Education in the New University of Ulster) describes the theoretical background and validation of the Test and gives scoring keys and tables for speedy conversion of Test results to Reading Age.

Packs of 20 Tests 8s/40p Manual 3s/15p

Developing a New Curriculum

Published on behalf of the Centre for Curriculum Renewal and Educational Development Overseas.

A collection of articles which study the practical problems of Curriculum change in schools.

The book opens with a general introduction to the factors which stimulated curriculum change in Britain in the 1960's and the pattern for implementing change which has begun to emerge. It includes an extensive bibliography covering both the theory and practice of curriculum development.

1970 $8\frac{1}{2} \times 5\frac{1}{2}$ — 160pp — £1·50

Heinemann Educational Books

48 Charles Street, London W1X 8AH

EDUCATIONAL RESEARCH

A review for teachers
and all concerned with
progress in education

Published by the
National Foundation for
Educational Research
in England and Wales

Volume 13 No 2
February 1971

12.7.71

Announcement

The attention of our readers is drawn to the inside front cover, showing the changes in single copy and subscription arrangements.

Owing to substantial cost increases in distribution services, it has become necessary to revise the flexible facilities that have been maintained for several years.

It will be noticed that single issues of the journal are now to cost more pro rata than the annual subscription which includes three issues. Also, the annual subscription period is to date from the commencement of each new volume in November. New subscriptions taken out during the year, unless postdated, will be supplied with the issue(s) already published for the current volume, and the remaining issue(s) when published.

Payment with all subscriptions and other orders is requested except for institutions which normally have credit facilities.

© 1971 *National Foundation for Educational Research in England and Wales*

Published by the National Foundation for Educational Research in England and Wales, The Mere, Upton Park, Slough, Bucks.
and Printed by King, Thorne & Stace Ltd., Kingthorne House, School Road, Hove, Sussex BN3 5JE

1000 RESPONSES TO ENGLISH LITERATURE—(2)

G. YARLOTT and W. S. HARPIN *Department of Education, University of Nottingham*

IN THEIR previous article (*Educational Research*, 13, 1) the authors discussed the attitudes of 1,000 pupils in selective secondary schools towards literature generally and towards GCE 'O' and 'A' level examinations. In that article they explored pupils' expressed likes and dislikes of texts prescribed by GCE examining boards; they now consider these same pupils' preferences in their leisure reading, and conclude that present methods of teaching English often fail to take into account 'consumer' response, particularly in poetry and drama reading.

Our subjects were asked to choose from a list of 32 categories of reading matter (listed in Figure 1) the three categories they most liked reading for pleasure (Question 18). They were then asked to select from the following 13 categories the three types of reading they most enjoyed (Question 19). Did they prefer books which:

(a) contain plenty of descriptive and imaginative writing,

(b) relate to personal hobbies and interests,

(c) present interesting and thought-provoking ideas,

(d) explore human feelings and personalities in some depth,

(e) present interesting and original new ideas *and* explore human feelings and personalities in some depth,

(f) provide light reading or amusement,

(g) provide thrills or suspense,

(h) provide mystery or intrigue,

(i) contain stories with plenty of action,

(j) deal with love or romance,

(k) contain useful information about unfamiliar subjects,

(l) deal straightforwardly with important contemporary problems,

(m) deal with serious matters in a satirical or ironical manner?

(see Figure 2). Finally (Question 20) they were asked to name their three favourite authors (see Table 6).[1] In each of these questions, subjects were asked to nominate a first, second and third place, but in the analysis of results all three choices were treated as equal.

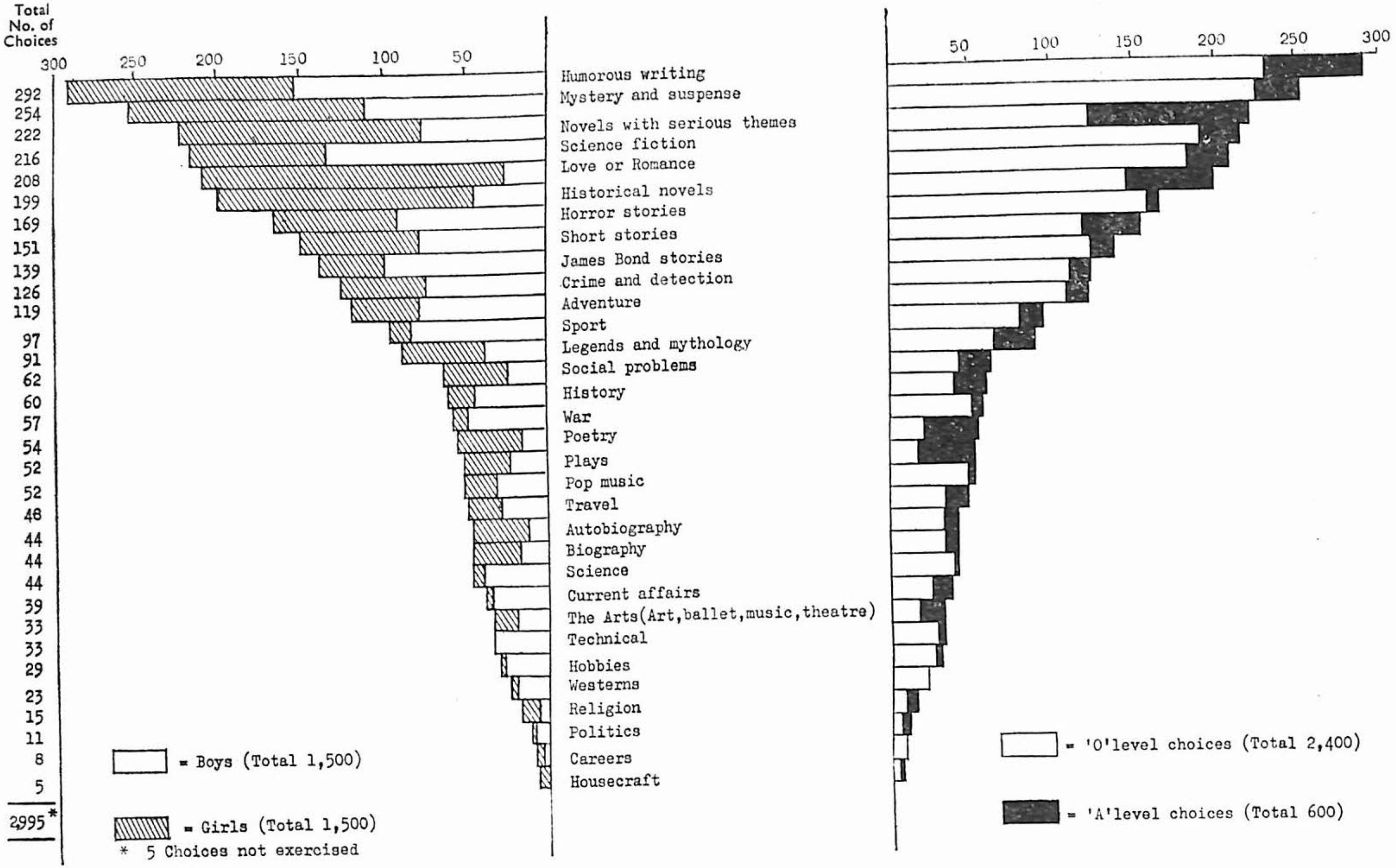
Only the question on favourite authors allowed a free choice of answers, and replies to this question were occasionally only partly complete. Some pupils reported afterwards that they found it difficult to specify 'favourite' authors, or to remember a particular writer's name (though where they supplied a book title, the author's name was substituted) and doubtless there were some who entered authors whose books they happened to have read very recently, whether genuinely favourite authors or not. Nevertheless, we received a total of 2,780 author-mentions (out of a possible 3,000), a number large enough to yield valuable, up to date information about secondary school pupils' reading preferences. In all, 450 writers were named, 243 of whom were mentioned by one person only.

The categories of reading matter listed in Figures 1 and 2 were not arbitrarily arrived at, but compiled only after discussion with teachers involved in the survey and on the basis of a pilot

---

[1] Tables 1-5 can be found in the first part of this article (*Educ. Res.*, **13,** 1).

Figure 1: Preferred categories of reading matter



investigation using different subjects from those in our main sample. On the trial run these experimental subjects were invited to choose categories from lists provided for them or, if these did not reflect their reading preferences adequately, to nominate other categories of their own choosing. In the light of these additional suggestions the categories finally selected were increased from 22 to 32 and from 10 to 13 respectively. In the main inquiry, subjects appeared to be content to express their reading preferences within these options since, of the 1,000 pupils involved, only four felt it necessary to go beyond them. 'Books about mathematics' and 'archaeological text books' were nominated by two 'O' level boys; 'French novels (Maupassant, Zola)' and 'Rugby songs' were the enterprising suggestions of two 'A' level boys. We assumed that, by presenting subjects with reasonably comprehensive lists of this kind, they would be obliged to consider a wider range of possibilities than might have occurred to them had they been allowed a free choice in the matter. Judging from the spread of responses to these questions, this assumption appears to have been justified.

It is difficult to compare the results of the present inquiry with those of other investigations in this field, since the samples used in each survey differ so widely. Our sample was derived from 1,400 pupils in 18 selective schools, from whom 800 'O' level and 200 'A' level candidates, divided evenly between boys and girls, coeducational and single-sex schools and, where applicable, upper and lower ability groups were finally selected. Only two previous surveys have exceeded this sample size for pupils aged 15-18; Scott's (1947) investigation involved nearly 4,000 boys and girls, of whom more than 2,000 were over fifteen, but these were drawn from a wider ability range and from New Zealand secondary schools, some of which have no exact counterpart in the English educational system. Smith and Harrap's *Survey of Boys' and Girls' Reading Habits* (1957) was based on a questionnaire completed by 8,000 pupils, but these came from public, grammar and secondary modern schools and from the full secondary age range, 11-18. Inglis' (1969) sample of 221 boys and 261 girls included only fourth-year pupils from both selective and non-selective schools. Butts (1963) used 486 children aged 11-15 from the 'A' stream of 14 secondary modern schools, while Black and Schofield (1958) surveyed the reading of 414 girls in the first four years of grammar schools. Lane and Furness-Lane (1967) based their inquiry on a 20 per cent random sample of girls in one single-sex comprehensive school and, of this mixed ability sample, only 33 girls were aged 15 or more. In Jenkinson's (1940) survey 171 boys and 153 girls aged 15+ were drawn from selective secondary schools, from the 'A' forms only.

The main focus of interest and the procedures employed in these other investigations also differed considerably from those of the present inquiry. Thus, as well as inquiring into book reading preferences, both Jenkinson and Scott investigated cinema going, radio listening and periodical reading habits. Smith and Harrap and the Lanes explored in addition the sources of recommendations for reading; Butts attempted to isolate the ingredients in books most important for his sample, while Black and Schofield confined themselves to patterns of reading choice. The questionnaire produced by Inglis was intended as a supplement to two tests, on 'Culture' and 'Environment'.

The present inquiry ranges less widely than some of these other surveys, but probes more deeply into pupils' preferences, tastes and discriminations among books read both in and out of school. Jenkinson, Scott and the Lanes simply asked subjects to name books they had read out of school during the past month, a method which, though useful for determining what is being read here and now, does not necessarily elicit a subject's most deep-seated preferences. Jenkinson suggested to his subjects eight categories into which reading matter might fall, Smith and Harrap, and Butts presented 13, while Inglis offered a choice of 11 fiction and five non-fiction categories. The present survey offered two lists, of 32 and 13 categories respectively, structured in such a way that one list could be used as a validating check upon the other. By requiring a choice of three options in each case, it enabled subjects to express more than one preference, irrespective of whether the categories they nominated reflected merely recent reading or not. It may be doubted, for example, whether all the 139 subjects who nominated 'James Bond stories' as their favourite reading (paralleled by the 175 choices of Fleming as favourite author) had actually read a Bond story during the past month. The nominated preference was, in other words, more significant than the chance reading. By March 1968 indeed, many pupils had probably already read Ian Fleming's entire output.

In the space at our disposal we cannot adequately compare and evaluate the various findings as between this and other inquiries into children's reading tastes. In some respects, other surveys mirror and confirm our own conclusions, emphasizing for example the massive popularity of light reading, girls' enjoyment of love and romance, the widespread distaste for poetry and play-reading. It is only to be expected that patterns of choice and emphasis should have altered in the 30 years since Jenkinson completed his work. Thus Adventure stories, the most popular category in 1940, and books on Hobbies and Crime and Detection, also very popular with Jenkinson's subjects, are well down the list for today's 16- and 18-year-olds. Similarly, books on War, listed by 51 per cent as of 'most interest' in the Smith and Harrap survey of 1957, had declined greatly in popularity by 1968. These seem to be indications of significant changes in patterns of taste over a period of years, though War is still a respectable fourth in the 'most enjoyed book' category for Inglis' admittedly younger sample. This evidence, because of variations of age among the groups investigated, may indicate the hoped-for maturing of responses with an increase in age. In certain respects, however, the differences between our own findings and those of previous inquiries present anomalies which are less easily accounted for. Humorous writing and light reading was the most popular category for our subjects (confirmed by two separate questions) and yet Humour rates only 10th of the 11 categories used by Inglis; Lane and Furness-Lane do not mention it as significant for the girls in their sample; it did not appear for boys in the first six categories and for girls only in sixth place in Jenkinson's survey. Even allowing for the fact that Inglis' fourth-form pupils were younger than the pupils in our sample, discrepancies of this kind admit of no obvious explanation, particularly as the two surveys were carried out almost simultaneously. Science fiction, for instance, rates fourth of our 32 categories, but only ninth of the 11 in the Inglis list. Similarly, books containing 'plenty of descriptive and imaginative writing' rate high for enjoyment with our subjects (and among the looked-for ingredients in reading in Butts' investigation), whereas 'description' was specified as a major disliked ingredient in reading by Inglis' fourth formers.

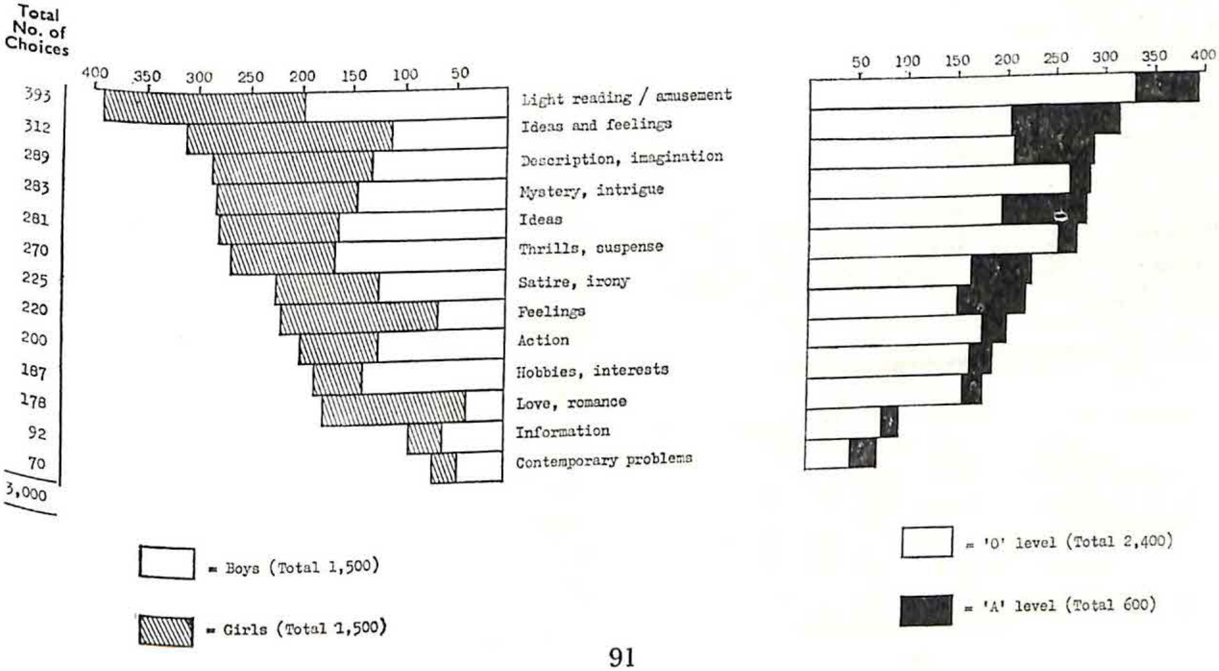
A major difficulty in comparing the results of different questionnaires is that their structuring and phraseology differ in ways which crucially affect the results. Much care and experimentation will need to be expended on this matter before the really large-scale inquiry, which is now needed as a matter of educational priority, is pursued—namely an investigation of the tastes of boys and girls of different ages, abilities, educational settings and socio-cultural backgrounds, and of the ways in which these tastes and attitudes towards reading change as children grow up. We have observed in our own survey how the structuring and wording of particular questions influences the answers received. Hobbies, for example, which has rated high in most previous inquiries, polls 7·8 per cent in competition with only 12 other categories and when coupled with 'personal interests', but when set against 31 other categories it drops to 1·3 per cent. The discrepancy suggested by these figures arises purely from the ways in which the two questions were structured: in terms of rank order the position of Hobbies in Figures 1 and 2 is in fact more or less the same (27/32, 10/13).

In the case of Love/Romance, however, the rank order position also changes considerably from Figure 1 to Figure 2 and here we must look for a different explanation, although one which can still be traced back to the different structuring of two similar questions. For the girl reader particularly, who is interested in books about the feelings and personalities of human beings, there were three very obvious choices among the very long list of options in Question 18, namely: Love or Romance, Novels with Serious Themes, Historical Novels (all three of which categories are heavily used by girls). The items listed in Question 19, although fewer in number, in fact offered more subtle choices for this type of reader, several of which were more attractive than the terse 'love or romance', particularly as the connotations of that particular label may have offended the mature pupil's sensibilities.

Turning then to the main results of the present inquiry, we notice that while 16- and 18-year-olds resort to leisure reading for a variety of purposes—for information, for the pursuit of individual interests, for intellectual stimulation, for relaxation and diversion—like adults, they read books chiefly for entertainment and enjoyment. The preference for light reading, for books which give uncomplicated pleasure and amusement, is most marked. Humorous writing, thrillers and horror stories, love stories and romances, detective and adventure stories—these, rather than books dealing with religion, politics, current affairs, arts, science, biography and autobiography, are pre-eminently most popular. Fiction is preferred to non-fiction, novels and short stories to poetry and plays, historical novels take precedence over history, science fiction attracts far more readers than science. This overall preference for light rather than serious reading is scarcely surprising—relaxation, diversion and pleasure are traditionally advanced as prime reasons for reading and a desire to escape from present concerns is surely a universal tendency. It is only when adolescent reading is undertaken wholly on this basis that there are grounds for concern.

In our previous article we observed that three-quarters of the pupils in our sample agreed that reading gives insight into the problems which people encounter in everyday life, and roughly two-thirds agreed that reading gives insight into other people's behaviour. These affirmations are not inconsistent with pupils' expressed reading preferences, but it becomes clear that, for schoolchildren, the exploration of social problems and human patterns of behaviour should be located more often than not within a fictional context, that is to say in 'novels with serious themes' or in fictional works which 'present interesting and original ideas and explore human feelings and personalities in some depth'. 'Contemporary problems' as such rates lowest of all the 13 categories in Figure 2 while in Figure 1 'social problems', 'current affairs', 'religion' and 'politics' attract appreciably fewer readers than do any of the major categories of fiction. These affairs may well seem abstract and remote, even irrelevant to immature readers, by comparison with their more immediate personal concerns in growing up and in handling the complexities of human behaviour,

Figure 2: Preferred types of reading



which are most satisfyingly encountered in the situations of fiction. One understands and sympathizes with this predilection. Many adults would doubtless feel, like the 'A' level girls in our sample who nominated D. H. Lawrence, Jane Austen, Hardy, Steinbeck, Graham Greene, Virginia Woolf, George Orwell and Shakespeare as their favourite authors, that in the best fiction human problems are analysed more penetratingly and interpreted more sensitively than in some, perhaps many, of the theoretical treatments of these problems. This evidence provides a useful pointer perhaps for those engaged in planning general and liberal studies courses.

In many respects the quality of the list of favourite authors, by itself and in conjunction with other parts of the questionnaire, is most encouraging. It is difficult, perhaps undesirable, to attempt a qualitative assessment of 450 names, particularly as detailed reasons for choice are not available, but an unflagging appetite for reading is certainly demonstrated. Names established by other surveys are plentifully represented: Wells, Dickens, Stevenson, Conan Doyle, the Brontës, Buchan, Verne, Shaw, Huxley, Bennett, Kipling, Priestley, Dylan Thomas, Keats. The influence of examination texts may be inferred from the choice of Joyce, Forster, Golding, Graves, Keats, Owen, Sassoon, James, G. Eliot and T. S. Eliot. Contemporary writers, too, appear to have made their mark on our readers: Sillitoe, Amis, Barstow, Bradbury, Asimov, Braine, Murdoch, Salinger, Waterhouse, Treece, Aldiss. Some of the choices, particularly among 'A' level boys, whose tastes tend to be more adventurous than girls', are encouragingly ambitious—Sartre, Pasternak, Camus, Kafka, Fielding, Homer, Tennessee Williams, Blake, Waugh, Tolkien, Saki, Zola.

Table 6: Favourite authors

AUTHOR	'O' LEVEL		'A' LEVEL		TOTAL
	B	*G*	*B*	*G*	
Ian Fleming	120	42	10	3	175
D. H. Lawrence	43	52	19	31	145
Agatha Christie	48	79	2	2	131
Wells	78	26	4	4	112
Charles Dickens	37	51	10	7	105
Orwell	27	18	18	7	70
Shute	22	41	2	4	69
J. Wyndham	22	33	7	4	66
Hardy	12	25	11	13	61
Shakespeare	22	15	16	7	60
Sillitoe	24	19	3	2	48
Heyer	0	38	2	5	45
Conan Doyle	32	6	3	1	42
Wheatley	16	18	3	2	39
Austen	1	21	2	14	38
Golding	9	22	4	3	38
E. Brontë	3	27	2	3	35
Steinbeck	11	8	5	10	34
Poe	15	13	2	1	31
McLean	14	12	2	1	29
Milligan	19	4	4	1	28
Charteris	12	13	1	1	27
Hemingway	11	2	11	3	27
Innes	15	12	0	0	27
Du Maurier	2	19	2	1	24
Wodehouse	12	6	5	1	24
C. Brontë	1	19	0	3	23
R. Bradbury	9	6	4	3	22
G. Greene	8	2	1	9	20
J. Buchan	10	9	0	0	19
Hitchcock	10	9	0	0	19
Lennon	12	6	1	0	19
Verne	14	4	1	0	19
Stevenson	13	5	0	0	18
Bates	3	13	0	1	17
G. B. Shaw	9	3	1	3	16
Tolkien	3	4	4	5	16
Asimov	11	2	1	1	15
A. Huxley	2	6	3	4	15
Seton	0	10	0	5	15
Plaidy	0	14	0	1	15
M. Stewart	1	11	0	2	14
Tolstoy	3	3	5	3	14
Blyton	10	2	0	1	13
Dylan Thomas	4	6	1	2	13
Amis	7	1	3	1	12
Barstow	3	5	1	3	12
Creasey	7	5	0	0	12
W. S. Maugham	3	6	1	2	12
Spring	0	11	0	1	12
Brickhill	9	2	0	0	11
Forester	9	0	2	0	11
Graves	3	5	0	3	11
Haggard	4	5	2	0	11
J. Joyce	2	0	6	3	11
Saki	3	7	1	0	11
Gallico	1	8	0	1	10
R. Gordon	4	5	0	1	10
Keats	1	7	2	0	10
Sartre	0	6	3	1	10
Bennett	0	3	4	2	9
N. Dunn	3	6	0	0	9
Willis Hall	6	3	0	0	9
Pasternak	1	6	0	2	9
Treece	1	4	4	0	9
V. Woolf	0	0	1	8	9
Cronin	3	5	0	0	8
Forster	0	1	5	2	8
C. S. Lewis	2	3	2	1	8

AUTHOR	'O' LEVEL		'A' LEVEL		TOTAL
	B	*G*	*B*	*G*	
Chaucer	4	0	3	0	7
Dostoievsky	1	3	2	1	7
W. E. Johns	7	0	0	0	7
Kipling	2	3	2	0	7
M. de la Roche	0	7	0	0	7
Spillane	5	0	2	0	7
B. Stoker	5	2	0	0	7
Aldiss	5	0	1	0	6
Camus	0	1	2	3	6
A. Clarke	5	1	0	0	6
M. Dickens	0	6	0	0	6
G. Eliot	0	5	0	1	6
H. James	0	0	2	4	6
Robbins	5	1	0	0	6
K. Waterhouse	5	1	0	0	6
Braine	0	2	3	0	5
M. Campbell-Barnes	1	4	0	0	5
Chesterton	3	2	0	0	5
Conrad	3	1	1	0	5
T. S. Eliot	0	0	2	3	5
Golon	3	2	0	0	5
Patrick Moore	3	2	0	0	5
I. Murdoch	0	0	2	3	5
E. F. Russell	5	0	0	0	5
Salinger	3	1	1	0	5

From another standpoint, the picture is perhaps less encouraging, or at least it might be so represented. Whatever their merits as commercially successful writers, Ian Fleming and Agatha Christie (the first and third most popular of the writers on our list) are not normally thought of as authors who excel in providing insights into everyday human problems and real life behaviour. Many of the writers in the full list of 450, and particularly among those 243 mentioned only once, lay no claim to literary merit in their work and seem to offer only the most transient of satisfactions to the reader desiring pleasure with his relaxation. There seems to be some conflict here between the expressed valuations of literature that we commented on earlier and the actual reading our subjects undertake. Our considered view is however, that, on all the evidence, the conflict is more apparent than real. A generous estimate of the proportion of 'cheerful Philistines' in our sample is barely 1 in 10: their pattern of answers suggests a rejection of literary values, of the worthwhileness of literary study, of the need for anything more than an occasional, superficial acquaintance with reading. The great majority in varying degrees, and with varying success, are moving towards an adult pattern of responses, a movement particularly marked as one looks at the differences between the 'O' and 'A' level groups.

Boys versus girls

The differences between boys' and girls' tastes in reading are largely as one would expect. Boys on the whole prefer 'masculine' writers like Fleming, Conan Doyle, McLean, Hemingway, Verne, Stevenson, Asimov, Brickhill and Forester, who provide a strong narrative line with plenty of action and thrills; they enjoy writers like Wells, Orwell, Shakespeare, Shaw and even Milligan who present thought-provoking ideas, often in a humorous vein. Apart from Agatha Christie and (surprisingly) Enid Blyton, they seldom nominate women as favourite authors. Jane Austen, Georgette Heyer, Emily and Charlotte Brontë, Daphne du Maurier, Anya Seton and Jean Plaidy polled a total of 195 votes, only 15 of which came from boys. Girls are especially fond of writers of their own sex, and among male writers often choose those who are credited with insight into the behaviour and personalities of women—D. H. Lawrence, Shute, Hardy, Bates, Maugham, Howard Spring, Gallico.

As indicated, short stories, humour and mystery are enjoyed almost equally by both sexes, but, otherwise, patterns of taste are linked with predictable sex differences. Boys are strongly attached to science fiction, to James Bond stories, sport, adventure, crime and detection, history and war, and it is the 'O' level boys whose choices dominate categories like science, current affairs, technical books, hobbies, Westerns. Girls favour love and romance, historical novels, novels with serious themes, legends and mythology, social problems, poetry, autobiography. Nothing illustrates the sharp sex difference in choices more clearly perhaps than the interesting cross-over between history (chosen by 44 boys, 16 girls) and historical novels (chosen by 45 boys, 154 girls). For boys, history may be associated primarily with interesting ideas; for girls the historical novel, especially as handled by recent writers like Heyer, Seton, Plaidy and Golon, has become strongly love- and romance-orientated and consequently may be linked with several of the categories most strongly preferred by girls. How far girls' interest in love and romance and the exploration of feeling is related to sentimentality one can only speculate. Inglis concluded that sentimentality was a marked characteristic among the fourth-year girls in his sample, as it was for Harpin in the work referred to in the previous article on patterns of discrimination in the response to prose fiction.

'O' versus 'A' level preferences

We have already remarked on the evidence of maturing sensibilities at work in the progress from the 'O' to the 'A' level group. Among the 'A' level subjects there is a sharp decline in interest in the work of Fleming, Christie, Wells, Shute, Wyndham, Conan Doyle, Buchan, Verne and Stevenson. Conversely, the popularity of more serious authors like Hardy, Orwell, Shakespeare, Austen, Steinbeck, Hemingway, Greene, Huxley, Tolstoy, Joyce, Woolf, Forster, James, T. S. Eliot, increases appreciably. The taste for humour, legends and mythology, short stories and science fiction persists; adventure, love and romance, thrillers, detective and horror stories and Westerns are rapidly losing their appeal. Bearing in mind that there are only 100 each of boys and girls in our 'A' level sample, one observes how at 18 novel-reading is becoming centred upon novels with serious themes, a category which claims the votes of 39 boys, 58 girls. Historical novels, with figures of 16 and 36 respectively, runs second. In the sixth form poetry and play-reading come more into their own, as also do history, the Arts, social problems and travel.

The 'A' level pupil's relative lack of interest in books to do with politics or current affairs raises an interesting point. Many of these pupils, who completed the questionnaire in 1968, are now in their third year at university and perhaps politically active there. If such is the case, one can only infer that a serious interest in politics has been for most of them a very recent acquisition. Our sixth-form subjects' almost total lack of interest in science also prompts speculation about the likely reaction of Arts sixth-formers generally to any proposal for a 'Q' level examination, for which they would be expected to study mathematics or science. Since, of our 200 subjects, only one boy included science among his three preferred types of reading, one may assume that the implementation of such proposals would not be greeted with unalloyed pleasure by every sixth-former. Science fiction, yes: science itself, or anything technical, no. As Figure 2 indicates, the Arts sixth-former is not much drawn to reading matter which merely contains useful information about unfamiliar subjects and he (or she) is not captivated by abstractions in which the inter-play of human feeling and personality have little part. As many people are beginning to suspect, it is possibly the absence of these elements in much of the content and teaching of science that is a prime cause of the swing we are witnessing at present towards the Arts and social sciences. Sixth-formers may be wrong in their judgment of science, but the evidence of this survey suggests that this is in fact how they judge it.

We return to the point, raised in our earlier article that, while novel reading is immensely popular at both 'O' and 'A' level, poetry- and play-reading, particularly as 'O' level activities carried out in the classroom, are actively disliked by a very large number of pupils. Only one 'O' level boy in 11 (and one girl in seven) expressed any desire to read more poetry after leaving school, and only one boy and one girl in seven expressed a desire to read plays after leaving school. Our subjects had no opportunity in the second part of our questionnaire to express active hostility to these traditional ingredients of the literature course. A request to nominate preferences for authors and types of reading allows only the inference of dislike or indifference. Nonetheless, the information presented in Figures 1 and 2 confirms that the 16-year-olds' interest in poetry, particularly as leisure reading, is negligible. Only seven boys and 15 girls chose poetry as one of their favourite forms of reading, only 10 boys and eight girls chose plays (probably that committed minority about to enter the Arts sixth to read English). Even at 'A' level, the enthusiasm among boys for poetry and play reading was no more than lukewarm, the numbers opting for these categories being eight and 13 respectively. The figures for frequent playreading at 15+ in Jenkinson (5 per cent), Scott (4 per cent) and the Lanes (10 per cent) tend to confirm the reliability of the figures in the present survey. Inglis appears to have omitted the replies he received to the relevant question (No. 28) in his survey.

There may in fact be a submerged taste for play-reading concealed by the large number of options, many of them superficially more attractive, among which our subjects had to choose. The right play, even as an examination text, can be very popular, as the figures quoted in our previous article for *The Long and the Short and the Tall* and for some Shakespeare plays indicated. The pilot investigation discovered a universal desire to see more plays performed in the theatre and there is some force in the argument that to find play-reading truly satisfying, special reading skills need to be developed. The list of favourite authors (Table 6) is difficult to present clearly as evidence for one side or the other on this question. Apart from Shakespeare, Shaw in 36th place is the first writer likely to have been chosen primarily as a dramatist, but a number of other authors come high on this list who, though not normally regarded as dramatists, are writers whose work has recently been dramatised for stage, television or cinema. Lawrence, Agatha Christie, Orwell, Hardy, Sillitoe, Conan Doyle, Jane Austen, Golding, the Brontës and Graham Greene are cases in point. It is likely that most will have been chosen as novelists, but it is not impossible that some of our younger subjects in these circumstances might regard them as playwrights.

As regards poetry reading, the present survey confirms what other inquiries have revealed, namely that the 16-year-old's attitude to poetry is largely one of indifference or dislike. Comparisons between our findings and those of other investigators are difficult because in each case the size and age of the sample differs considerably, while the questions on poetry reading differ significantly in wording. We may however compare, with these reservations in mind, three major inquiries which deal with children approximately equivalent in age and ability. The 171 boys and 153 girls in Jenkinson's 15+ sample resembled our subjects in that they were drawn from selective secondary schools. The 163 boys and 100 girls in Scott's 17-year-old sample were all able children, as far as is known, though the 703 boys and the 585 girls in his 15-year-old sample were drawn from a wider ability range than their English counterparts. Jenkinson and Scott asked children whether they read poems out of school, using three and four categories respectively for classifying answers. Our question asked whether, after leaving school, pupils would (1) definitely want to read more poetry, (2) might wish to read poetry occasionally, (3) never wish to read poetry again. By conflating the results of the three surveys it is possible to draw up Table 7.

Table 7: Amount of poetry reading or intention to read poetry (percentages)

SURVEY	AGE	OFTEN		SOMETIMES		HARDLY EVER		NEVER	
		Boys	*Girls*	*Boys*	*Girls*	*Boys*	*Girls*	*Boys*	*Girls*
Jenkinson	15+	0·5	8	58	61	—	—	41·5	31
Scott	15	3	7	29	45	41	33	27	15
Yarlott and Harpin	15-16	9	15	44·5	57	—	—	46·5	28
Scott	17	4	7	33	38	37	39	26	16
Yarlott and Harpin	17-18	30	44	51	54	—	—	19	2

Juxtaposing these results, even in this unpolished fashion, raises some interesting points. By including a separate category for those who 'hardly ever' read poetry, Scott reduced the size of the median category, with the result that there was a massive movement toward the negative pole, a tendency reflected in replies to the Lanes' simple Yes/No question: 'Do you read poetry out of school?' Of the Lanes' sample of 33 girls aged 15-16, 23 (70 per cent) answered 'No' to this question; in Scott's questionnaire 68 per cent of the boys and 48 per cent of the girls used the two negative categories. In both Jenkinson's and our own question, the median position offered an easy escape route for the uncommitted reader; the Scott figures suggest that a good proportion of these are 'hidden negatives'. Even the positive answer to our question committed the pupil to saying no more than that he was willing to read poetry again at some unspecified future time, and, since these subjects were all high achievers in English, it is not surprising that their percentage of positive responses was higher than in the other two surveys, particularly at 'A' level. By the same token a negative response demanded a more explicit hostility to poetry than in either of the other two surveys. It meant not merely that one had actually read no poetry out of school during the past month, but that after leaving school one did not wish ever to read poetry again. Looked at in this way, the number of negative responses, particularly among 'O' level boys, is disturbingly high.

Jenkinson, observing the 'unyielding resistance to the appeals of poetry' which prevailed in secondary schools in the late 1930s, deplored the unsuitable diet of poetry which schools offered to children. He speculated whether the work of contemporary poets might not play a bigger part in the syllabus. In recent years the range of poetry offered has increased immensely, modern anthologies have a welcome physical attractiveness for the reader and yet, as we see from a comparison of Jenkinson's figures with ours, the bedrock resistance to poetry among boys endures virtually unchanged, nor is it negligible among girls, except at 'A' level. Though the possibility exists that some of the writers in the 'favourite authors' list coming before Keats (the first 'pure' poet, in 57th position)—Lawrence, Hardy, Shakespeare, Dylan Thomas and Graves—were nominated as poets rather than for their prose or dramatic writing, it seems unlikely.

Conclusion

In teaching literature to secondary school pupils there are both cultural and psychological considerations to be borne in mind. We wish to extend pupils' knowledge of their literary heritage, to introduce them to some of the best that has been thought and written, and at the same time to provide a course which is enjoyable and relevant to their immediate interests and concerns (Yarlott, 1968). Sometimes it is not difficult to satisfy both sets of considerations: provided that books are carefully chosen and sensitively presented, able 16- and 18-year-olds will respond enthusiastically, even under pressure of a forthcoming examination, to some of the most demanding texts in our literature. The GCE course, capably taught, undoubtedly widens many pupils' mental and imaginative horizons; it helps them to develop taste and critical judgment, and it encourages a desire to go on reading. But all too frequently, it seems, our present methods of teaching and examining English Literature fail to take into account the 'consumer's' response to the subject. There is a tendency to prescribe what 'ought' to be read without any regard to how the prescription relates to the pupil's immediate interests and concerns and to his own reading preferences. Admittedly, the pupil's own, possibly immature, tastes are not the sole criterion for determining what he should read in school, but to disregard these entirely is to risk alienating that good will towards literature which manifestly exists in a majority of abler pupils, and to risk incurring open hostility to the teaching of English.

For one reason or another the 'O' level examination has been under criticism for some time now, and its objectives and procedures are overdue for re-appraisal. The criticism frequently made against the 'O' level English literature course in particular is that it stultifies interest and fails to provide enjoyment. Our findings suggest that of the three stock elements of the 'O' level course, the study of prose literature and to a lesser extent dramatic texts, are wholly or partly immune from this criticism. It is the third element, the study of poetry, which produced indifferent or negative responses in all but a small minority of pupils. One is bound to ask therefore whether the examining boards should continue to demand a study of poetry as a compulsory element in the 'O' level examination. If the hope is that its inclusion may arouse a taste for poetry, then that hope is patently unfounded, at least for a majority of the 16-year-olds we have examined. Poetry, as other investigators have shown, is often popular in junior and middle school forms and there is sometimes a resurgence of interest in the sixth form, but for a majority of fourth and fifth forms it might be better if the study of poetry were made a voluntary or occasional, rather than a compulsory, activity.

To enlarge the prose element in the 'O' level syllabus, as an optional alternative to the study of a poetry selection or anthology, would be a popular move with many English teachers as well as with a majority of examination candidates, nor need it entail any diminution in the quality or level of response demanded by the examination.

One would hope that in choosing additional texts for this purpose teachers and examiners would make conscious and more direct use than hitherto of the factual evidence now available about pupils' own reading preferences, tastes and discriminations. As the responses to our questionnaire show, many 'O' level candidates have already discovered for themselves the pleasure to be gained from reading novels and short stories which present serious themes and ideas, and explore human personality and behaviour in some depth. They have indicated the sort of qualities in literature and the kinds of author whose work appeals to them most strongly. There is a mine of valuable information here from which teachers of English can devise courses of reading which would be not only worth while by the highest critical standards but likely to engage the interest of a majority of pupils in this age and ability range.

References

For detailed references to works cited in this article, the reader is referred to '1000 Responses to English Literature—(1)'—*Educ. Res.*, **13,** 1 (November 1970).

CHILDREN RECEIVING REMEDIAL TEACHING IN READING

ASHER CASHDAN[1], **P. D. PUMFREY and E. A. LUNZER**[2] *Department of Education, University of Manchester*

Over 1,200 children receiving remedial teaching in reading were studied on ten main variables: IQ, chronological age, mental age, initial reading age, reading age after treatment, treatment length, number of attendances, percentage attendance, size of teaching group, and improvement. Sex distribution and laterality patterns were also examined.

The findings of many previous smaller studies were in general borne out. In particular, little relationship was found between lateral dominance and reading disability or between intelligence as measured and reading improvement. Only when groups contained more than six children did group size affect progress adversely. Further studies are in hand.

Specialist remedial teaching has been provided for children who are slow to learn to read by most local authorities for some years. Its organization varies from the provision of remedial classes under the control of the head of a particular school to the use of peripatetic or clinic-based services. Naturally, the progress made by the children so helped is a matter of considerable practical as well as theoretical interest. At first sight this seems an obvious and easy topic for investigation by the educational psychologist or further degree student, but there are many difficulties. There is great variety in both teaching methods and rationale and it is often impossible to specify the methods used at all precisely. Selection procedures are often unsystematic and unanalysed and diagnostic sophistication is not always very high. Still, one might hope at least to justify the work by showing what good progress the treated children make and that this progress is not just due to practice on the tests used.

Early studies, for instance Birch (1948/9), were quite encouraging; typically children seemed to gain two months in reading age per month of remedial teaching. And it is worth emphasizing that most of these children had made no progress in the preceding year or two. However, later studies introduced a discordant note. Two findings emerged: first, follow-up studies showed that the treated children did not often maintain their initial improvement; although few actually relapsed they did not continue to close the gap between their chronological and reading ages. More surprisingly, control groups of untreated children were found to show a later spurt and to catch up with those who had had remedial help. Typical of this group of studies are Collins (1961), Lovell (1962, 1963) and Cashdan and Pumfrey (1969). Chazan (1967) has published a useful review. This poorly maintained progress on the part of children selected for the remedial teaching of reading seems to suggest that the effect of the remedial work is not to change their whole rate of progress but simply to spark off a minor improvement rather earlier than would otherwise happen.

One might think to rehabilitate the remedial teacher by arguing that the children they teach acquire healthier and more positive attitudes to reading than the controls and that they may be keener readers as adults. But this has never been demonstrated very positively in research studies: both Dunham (1960) and Cashdan and Pumfrey

---

[1] Now Senior Lecturer in Educational Studies, The Open University.

[2] Now Professor of Education, Nottingham University.

(1969) failed to discriminate between experimental and control groups on attitude-to-reading scales.

It must be stressed that nearly all researches in this field, including the one to be presented in this paper, have been undertaken with groups of children taught for short periods once or twice a week by an 'outside' teacher. It may well be that full-time remedial classes or other forms of remedial organization (see Morris, 1966, and for an alternative type of organization, Clift, 1967) may yield quite a different result, and we cannot prejudge this issue. Nevertheless, local authorities are bound in the circumstances to reconsider their provision; many have already done so. It seemed, therefore, a good idea to collect some factual information about the workings of a large remedial service, as some contribution to the discussion. Our data are mainly contemporaneous rather than longitudinal; but we do hope to follow them up with longer-term and more specific studies.

The present study

We have taken a number of children receiving remedial education once a week from a peripatetic service in a densely populated urban area. We have no controls and, as yet, no follow-up information. What we have done is to look at a number of variables against the criterion of immediate improvement. Our hope is to discern some tendencies which can be further explored and to provide some factual information about an actual service. We have looked at all the junior-age children who were being taught in 1964 by the service's staff. We have not controlled the methods of teaching used, the selection of the children, the length of time for which they were taught or the frequency of testing. The advantages of this approach are that our results are not highly special or experimental and they may therefore be thought suitable for the drawing of generalizations to other practical situations and as pointers in the making of administrative decisions. But the very reality of the situation means that few variables are clear-cut. To take one example—the children who made most progress also attended for rather longer periods. This may reflect the efficiency of the treatment or the teachers' good judgment in discarding unpromising cases. Further analysis of the data might help in teasing out some of these interactions a little further. But such analysis has limitations; we prefer rather to treat our findings as interesting starting points and to examine the more outstanding ones in separate, later inquiries.

The survey covered all the junior age children in a large borough who were being taught at any time in 1964 by the remedial staff of 19 teachers. The number involved was 1,227—this represents two to three per cent of the age group, being almost entirely children aged 8;0 to 10;11. Excellent records were kept and without this the research would have been impossible. In fact, the record system was specifically established to facilitate such research.

The analysis

The availability of the Atlas computer (and his interest in this) made it possible to use a programme written and developed by E. A. Lunzer. This works right through from the raw data to the finished product. It provided us with means and standard deviations on the whole sample and with a correlation matrix. In addition, it sorted out the data on each variable into appropriate sub-groups and worked analyses of variance between these groups on each of the other variables as desired. This meant that, in addition to being able to examine the correlation between IQ and improvement (or size of teaching group), we could also look at the improvement made (or the size of group) by children of IQ 70 to 84, 85 to 99, and so on, separately, and could thus see more precisely where relationships occurred. Where appropriate, 't' tests were also worked (making allowance when necessary for lack of homogeneity of variance).

The results

The programme presented us with a large quantity of information (involving, for example, 80 analyses of variance). Only the major results will therefore be presented and comment will be confined to the more interesting findings. Except where otherwise stated, all correlations and mean differences discussed in the text are significant at the one per cent level.

Means and Standard Deviations

The number of children in the analysis is usually about 1,200 but a few children were

Table 1: Means and standard deviations (all ages are expressed in months)

	IQ	CA	MA	RA	RA Final	Treatment Length	Number of Attendances	% Attendance	Group Size	RA Improvement
		Initial								
Mean	95·8	106·9	102·1	70·5	91·2	11·0	24·7	85·8	5·2	20·6
SD	19·9	9·9	22·0	14·7	18·2	6·7	14·7	14·1	2·4	11·7

dropped on some of the measures owing to incompleteness of data. In nearly all cases the IQ was calculated from the Moray House Picture Test for seven-year-olds, but in a very few cases other tests were used. We would draw attention to the following points: (*i*) The service's policy was to concentrate on 'retarded' children in selection for remedial treatment. In fact, only 151 children had IQs of 115 and over (see comments on Table 4). (*ii*) The children's mean chronological age was just under nine and reading age just under six, making them three years behind on average. (*iii*) The final RA shows 21 months of gain in 11 months of teaching. This was a typical result despite the small number of remedial attendances—between once a week and once a fortnight over about a year. (*iv*) Mean treatment length is eleven months. This was calculated on the basis of the returns at the end of the school year in July but many of the children concerned would be continuing under remedial treatment in the next school year. In other words, 'initial' figures refer to the tests administered at the beginning of remedial treatment, whenever that was; 'final' figures represent the state of affairs in July 1964; 'improvement' means the difference between initial and final figures (in months).

The Correlation Matrix

We note first that the relationship between IQ and improvement is quite trivial, although it is technically significant. This may reflect the weakness of the Moray House Test and, indeed, other workers have found rather higher correlations using individual tests. Nevertheless, this test is widely used in conjunction with word reading tests to select retarded readers, so it is worth dwelling on the low figures obtained. However, some allowance must be made for the negative correlation (—0·14) between IQ and length of treatment. In other words there was a tendency for the bright children to improve more quickly; but again, this is only slight. Finally, the small negative correlation between improvement and group size indicates that bigger groups are not as successful as smaller ones.

Table 2: The correlation matrix

		IQ	CA	MA	RA	RA Final	Treatment Length	Number of Attendances	% Attendance	Group Size	RA Improvement
				Initial							
IQ			−0·18	0·81	0·51	0·48	−0·14	−0·07	0·16	−0·02	0·10
CA				0·41	0·27	0·15	−0·02	−0·08	−0·08	−0·01	−0·11
MA	initial				0·63	0·53	−0·13	−0·11	0·10	−0·02	0·03
RA						0·76	−0·24	−0·20	0·09	0·04	−0·06
RA final							0·12	0·19	0·13	−0·05	0·60
Treatment length								0·76	−0·04	0·06	0·49
Number of attendances									0·16	−0·05	0·53
% attendance										−0·05	0·08
Group size											−0·12

A correlation of 0·08 or above is significant at the 1% level

Table 3: Sex distribution

N=1,227		Boys (850)	Girls (377)
RA initial	Mean	69·3	73·2
	SD	14·5	14·8
Number of attendances	Mean	25·5	22·7
	SD	14·9	14·2

Sex Distribution

The ratio is typical: about two boys to each girl. That this is a true reflection of the population incidence of reading backwardness is supported by the fact that, even in this selected group, the initial reading level of the girls is significantly higher than that of the boys. In other words there is no suggestion that the backward girls were ignored; it looks rather as though they had to be sought out. Finally, although the boys made significantly more attendances they did not show greater improvement.

IQ Groups

This is the first of the analyses which enable us to study separate sub-groups; it demonstrates immediately the usefulness of the breakdown. For the relation between IQ and improvement is shown to be almost entirely due to the poor performance of the lowest group. Group 1, with IQs of 70 to 84, improve less than the others but there is no difference between Groups 2, 3 and 4. Group 1 have, however, other minor disadvantages. They do not attend as well as the other groups; they were taught (for reasons which we cannot elucidate) in rather larger groups and they attend (probably because of their poor improvement) for longer periods. Group 4 showed a mean backwardness of 19 months. The other groups are all more than 2½ years backward on average. Thus, any selection for 'retardation' (e.g. MA—RA) is heavily overshadowed by chronological age backwardness (CA—RA).

Chronological Age

Older children (Groups 3 and 4) show less improvement than the others, indicating perhaps that they are the harder cases. On the other hand, they are duller and they put in fewer attendances. Group 4 constitutes a very small number of fourth-year children (15), some of whom would have been awaiting ESN placement.

Table 4: IQ groups

Group	1	2	3	4
IQ	70–84	85–99	100–114	115 and over
N	212	457	379	151
Improvement				
Mean	18·3	20·7	21·7	21·6
SD	12·1	12·0	11·0	11·6
Percentage Attendance				
Mean	82·8	85·5	87·1	89·3
SD	15·0	14·1	12·9	13·2
Mean Backwardness (CA-RA)	48·25	40·23	31·17	19·10

Initial Reading Ages

At the commencement of treatment all children were given word reading tests, usually Burt's. Groups 2 and 3 improved most. Presumably those with higher reading ages had less room for quick improvement, whereas Group 1 contained many children who were completely non-readers and needed considerable help before they could start to make measurable progress. Groups 2 & 3 made marginally (but significantly) more attendances than the other groups.

Number of Attendances

Percentage attendance is in effect a measure of absence on occasions when the child could have had a remedial session. It is noticeable that the children who attended more sessions also had a higher percentage attendance. This figure may of course reflect a tendency for the remedial teacher to drop persistent defaulters. There is also a consistent trend for those with lowest initial ages to attend longest. Not surprisingly, too, the longer a child attended the more improvement he made. In months, the mean attendance period in Group 1 was 4·3 and in Group 6, 23·8. The size of Groups 1 and 2 is high, 586 children in all, with fewer than 20 attendances. This was partly due to extensive slum clearance and re-housing and it was often not possible to cater properly for re-housed

Table 5: Chronological age

GROUP	1	2	3	4
CA	8;0—8;11	9;0—9;11	10;0—10;11	11;0 and over
N	644	345	133	15
Improvement				
Mean	21·4	20·0	17·8	17·5
SD	11·7	11·1	9·9	13·2
IQ				
Mean	99·1	92·5	90·6	72·1
SD	17·7	21·4	20·5	37·9

Table 6: Initial reading ages

GROUP		1	2	3	4	5	6	7
RA (initial)		4;0—4;5	4;6—4;11	5;0—5;5	5;6—5;11	6;0—6;5	6;6—6;11	7;0 and over
N		216	103	153	134	212	170	239
Improvement	Mean	19·8	24·9	22·5	19·8	20·7	20·0	19·3
	SD	13·7	14·4	12·1	10·9	11·6	10·2	9·0

Table 7: Number of attendances

GROUP		1	2	3	4	5	6
Number of attendances		1–9	10–19	20–29	30–39	40–49	50 and over
N		156	430	321	152	86	79
% attendance	Mean	78·3	85·5	87·6	89·6	86·8	89·3
	SD	21·0	14·9	9·1	10·1	9·0	6·9
Improvement	Mean	12·6	16·3	22·4	26·3	27·2	35·2
	SD	7·7	9·4	10·9	11·1	9·4	12·3

Table 8: Size of teaching group

GROUP		1	2	3	4	5	6	7
Size of group		1	2	3	4	5	6	7 and over
N		23	102	136	287	224	223	232
Improvement	Mean	22·0	23·0	20·5	21·3	22·4	20·4	17·2
	SD	10·6	12·3	11·9	11·1	12·3	11·7	10·9

children. On the other hand, some of these children would have continued to attend in the following year—and a few would have been discharged deliberately after making particularly rapid progress.

Group Size

The main finding here is quite striking. Apparently groups of any size between one and six show similar improvement, but over seven there is a distinct fall. The groups did not differ significantly in length of attendance.

Laterality

Hand and eye dominance were checked for the whole sample. Seven per cent of the children were left dominant on both measures and 59 per cent fully right dominant. Mixed laterality is thus found in about 34 per cent. These figures correspond roughly with those found by Clark (1967) and Belmont and Birch (1965). As the normal population incidence of such 'crossed dominance' is at least 25 per cent we can draw few conclusions from the actual incidence, though it may be slightly excessive. On initial reading age the cross-lateral groups show slight inferiority but there is no difference in improvement. In particular, Group 4, the large group of right dominant children, show no specially good improvement.

Discussion

These results do not help us to solve the really difficult questions in this field. Standard deviations are often quite large—as many workers have pointed out, we still do not know why some children improve under remedial instruction while others remain non-readers. We also do not know why so many 'untreated' children apparently recover spontaneously. One problem lies in our poor control over different teaching conditions. Many so-called 'untreated' children may, in fact, receive considerable extra attention at school while remedial groups are not *always* in the charge of first-rate teachers using the best possible methods. In other words, there is some arrogance in the assumption that remedial children in special groups are always receiving far better help than their peers. Beyond this, however, the personal, family and school characteristics of good and poor responders are still far from being adequately defined, let alone investigated.

In the circumstances, we shall confine ourselves to setting down what seem the most significant findings of our survey, with fairly brief comments on each:

Table 9: Laterality

GROUP		1	2	3	4
Laterality		LH/LE	RH/LE	LH/RE	RH/RE
N		81	351	61	699
Initial RA	Mean	71·5	67·8	69·2	71·7
	SD	12·6	14·0	13·8	14·8
Improvement (F not significant)	Mean	22·5	22·0	18·0	20·3
	SD	11·5	12·3	10·0	11·6

(*i*) As measured, IQ proved to be unrelated to any real extent to improvement. Recent comments by Vernon (1969) and researches such as that of Curr and Hallworth (1965) cast considerable doubt on the validity of the concept of retardation—the idea that children who 'underfunction' in relation to their mental age are somehow more promising or more deserving than those who are simply behind in relation to their chronological age. It may well be that one cannot expect quick improvement from a generally dull child with an IQ of something like 70; on the other hand, there seems no good reason to select as general policy children with IQs of 105 or even 120 rather than those who function at about 90. It could be that the former group might have specific and fairly intractable problems, whereas the latter simply need fairly general environmental stimulation. But this is pretty speculative and probably the most one can say at the moment is that despite the general correlation between IQ and attainment, some children find learning to read difficult, irrespective of their measured intelligence.

(*ii*) Lateral dominance and crossed laterality were not found to matter very much. We are inclined to accept the view of Belmont and Birch (1965) that orientation difficulties (what they call 'lateral awareness') are more important in the poor reader than questions of dominance. Poorly established dominance—that is, where preference fluctuates—is also probably worth further investigation.

(*iii*) If we could trust it, the finding on group size would be of particular interest. Specialist remedial work is sometimes carried out individually, sometimes with twos, sometimes with groups of four and so on. We find that short-term progress is not adversely affected until the groups become larger than six—some of the survey children were in groups as big as sixteen. But we have to admit that selection factors were in no way controlled (though the service's general policy was to work in groups of four to six). Still, without being cynical, it seems to us unlikely that the typical decision-making process whereby a child is taken individually or put into a larger group is often much more sensitive or sophisticated or, to be precise, more valid than crude allocation by using measures such as IQ, initial reading age, chronological age, and so on. In other words, if we had valid criteria for deciding the ideal size of group in which to put a particular child, we could make meaningful decisions. But, for the present, we feel more inclined to rely on our survey finding and to suggest that any size of group up to six may be equally satisfactory. But it *could* be argued that as children in the smaller groups (say, ones and twos) did as well as those in 'sixes' they must have been well selected and that in these 'larger' groups they would have been the 'failing' children.

(*iv*) Gain in reading age (21 months in 11 months of teaching) is very reasonable considering the wide range of children and teachers (19 in all) and the variety of settings in which the teaching was carried out. But, as we have already stressed, this is purely short-term and follow-up might well confirm the unencouraging findings of other smaller-scale studies.

Conclusions

Further statistical analysis of the existing data might elucidate some of the findings a little further. For instance, if attendances were held constant the correlation between IQ and improvement would probably rise a little. But it is unlikely that such analyses would make any major further contribution to our understanding. What we intend to do instead, and have in fact made some beginnings at, is to carry out three further types of study. First, we are carrying out a fuller and more sophisticated analysis on a subsequent year's remedial work, and hope as one result of this to be able to check our present findings. Then, we propose to carry out a follow-up study, some five years later, of the children in our 1964 survey sample. Extensive re-housing may make this very difficult—a feasibility study is at present in hand. Finally, we would like to carry out some studies in greater depth. Social variables, such as family composition, might be worth looking at and the findings on laterality, though negative, do suggest further avenues of inquiry. We did, in fact, include one measure of family composition in the current study, though we have not reported this here, the only finding of note being that 'later' children showed greater backwardness in initial reading age than did only children or eldest ones.

This study is presented in no spirit of providing new discoveries or unusual insight but rather in the hope that the somewhat unusual availability of records covering such a large number of junior children in the live context of a working service would make it possible both to provide meaningful information and to highlight areas for further investigation, some of which we are now pursuing.

References

BELMONT, L. and BIRCH, H. G. (1965). 'Lateral dominance, lateral awareness, and reading disability', *Child Developm.*, **36**, 57-71.

BIRCH, L. B. (1948/9). 'The remedial treatment of reading disability', *Educ. Rev.*, **1**, 107-18.

CASHDAN, A. and PUMFREY, P. D. (1969). 'Some effects of the remedial teaching of reading', *Educ. Res.*, **11**, 2, 138-42.

CHAZAN, M. (1967). 'The effects of remedial teaching in reading: a review of research', *Rem. Educ.*, **2**, 1, 4-12.

CLARK, M. M. (1967). 'Laterality characteristics and reading', *Reading*, **1**, 3, 3-9.

CLIFT, P. S. (1967). 'The organization of the remedial teaching of children with reading difficulties', *Reading*, **1**, 1, 10-15.

COLLINS, J. E. (1961). *The Effects of Remedial Education.* London: Oliver & Boyd (for Birmingham University Institute of Education).

CURR, W. and HALLWORTH, H. J. (1965). 'An empirical study of the concept of retardation', *Educ. Rev.*, **18**, 5-15.

DUNHAM, J. (1960). 'The effects of remedial education on young children's reading ability and attitude to reading', *Brit. J. Educ. Psychol.*, **30**, 173-5.

LOVELL, K., BYRNE, C. and RICHARDSON, B. (1963). 'A further study of the educational progress of children who had received remedial education', *Brit. J. Educ. Psychol.*, **33**, 3-9.

LOVELL, K., JOHNSON, E. and PLATTS, O. (1962). 'A summary of a study of the reading ages of children who had received remedial education', *Brit. J. Educ. Psychol.*, **32**, 66-71.

MORRIS, J. M. (1966). *Standards and Progress in Reading.* London: Newnes/NFER.

VERNON, P. E. (1969). *Intelligence and Cultural Environment.* London: Methuen.

TEACHER TRAINING AND SCHOOL PRACTICE

T. DERRICK *Postgraduate School of Studies in Research in Education, University of Bradford*

A SAMPLE of 357 students from two colleges of education selected some personal qualities which they considered necessary for successful attainments in their colleges and in their practice schools. They also selected certain problems which they had experienced in either of these institutions. Colleges gave rise to more problems than practice schools, and 'professional' problems were more numerous than 'social' ones. Colleges required comparatively more 'individualistic' personal qualities than practice schools, and schools required more qualities slanted towards 'society's' well-being.

Edith Cope (1970), in her review of teacher training and school practice, devotes a section to examining the literature on students' attitudes to the above two parts of the course:

'All that can be said from a review of previous research is that school practice, though rousing strong negative feelings, is a highly valued part of professional training.' (p. 93.) She considered that the total result of research had been of disappointing value, mainly because the priorities had been wrong.

'What would be of value . . . would be inquiries which revealed the value systems operating within groups, threw light on the situational characteristics which might account for changes in teaching behaviour, and explored the desirable directions of change.'

The investigation reported in this article was focused on the last two of these objectives. It was undertaken to determine students' perceptions of the kind of behaviour required for their success in colleges, practice schools, an 'ideal' college, and an 'ideal' practice school, and the problems experienced in college and schools.

Method

The sample population was composed of the second year intake of one college of education and the third year of another, both in Yorkshire. The numbers involved were 180 and 177 students respectively.

Fourteen aspects of behaviour, e.g. 'willing', 'tolerant', etc., were measured by a seven-step scale and identified in each case at the two extremes of the scale by differing adjectives, e.g. 'willing'/'unwilling', etc. The fourteen aspects were willing/unwilling, tolerant/intolerant, traditional/progressive, intellectual/practical, conscientious/not conscientious, informal/formal, idealistic/realistic, critical/uncritical, rigid/flexible, independent/submissive, sociable/unsociable, unsympathetic/sympathetic, humorous,/humourless, conforming/non-conforming. These adjectives were selected by postgraduate course members who were full-time teachers in colleges of education or schools. The situational adjectival scale, rather than the more general semantic differential scale was used, since it was thought that this type would reflect more sensitively the behavioural changes and their desirable direction in related institutions showing

---

Acknowledgements

This investigation was initiated by Professor F. Musgrove as the 1968 field-work exercise for the advanced diploma course in the School of Education, University of Bradford, in collaboration with the writer who was course supervisor. Particular contributions were made by Messrs. C. Green, N. A. Green, M. A. Saunders, Dr. A. L. Smithers and Miss J. B. Tobin.

many common characteristics. The instrument concerned with the incidence of students' problems consisted of a check list of 21 problems selected by the same course members. The problems selected were:

1. the attitude of the college staff/head teacher;
2. feeling lonely at work;
3. worry over money;
4. pressure of work;
5. worry about your speech;
6. the attitudes of other students;
7. feeling you are not learning much;
8. the thought of going back to college/school;
9. restrictions and rules;
10. sense of not measuring up to what is required of you;
11. worries about dress and appearance;
12. being uninterested in the work you are doing;
13. feeling shy or awkward;
14. unsatisfactory accommodation;
15. feeling lonely in the evenings/week-ends;
16. lack of guidance in the work you are doing;
17. worry about your future career;
18. problems with girl friend;
19. problems with boy friend;
20. difficulty in coping with your work;
21. worries about social relationships.

Half the problems were concerned with 'professional' preoccupations and half with personal/social ones.

The group testing of the students' anonymous views on the behaviour they thought was required of them, and on the anxieties they had experienced, was carried out in colleges, with college staff supervising the testing.

The aspects of behaviour instrument was completed for four institutions by each student in the light of the opinions he had of the behaviour required of him in these four environments: (1) his college, (2) his practice schools, (3) his 'ideal' college, and (4) his 'ideal' practice school, in that order. (Warr and Knapper, 1968—scale sequence not important to subject response.)

The problem instrument was checked in the light of his experiences in his college and his practice schools.

At the same testing the following personal information was requested for each respondent: sex and course age range—infant, infant/junior, junior, junior/secondary, and secondary. Courses were grouped into three categories: infant + infant/junior; junior + junior/secondary and secondary. The last category was rather specialized and consisted of only 28 students. It was omitted when course age range comparisons were being made.

Analysis of data

'Problems' were examined over all the sample, and then comparisons made within age groups and course groups.

'Behaviour' was examined over all the sample, but not within age groups or course groups since this was not possible with the resources at hand.

The fourteen aspects of behaviour

Distributions were compiled and medians calculated for all fourteen aspects of behaviour in the four institutions: in college, in school, in 'ideal' college, and in 'ideal' school.

Each aspect of behaviour was then given the name of one of its two opposing adjectives—that particular adjective which was the nearer of the two to the median score for that scale. For instance, the scale 'idealistic' (Score 1) to 'realistic' (Score 7) had a median score of 4·24, and this aspect of behaviour was then called 'realistic' in order to illustrate the trend of the median and for shorthand purposes. Such a procedure, however, could only be adopted without confusion if the medians for 'idealistic/realistic' in all four institutions were nearer the same adjective. This was indeed the case on this and all other 13 aspects of behaviour. There was one marginal case of inconsistency out of the 56 measurements:

Interpretations

Differences in medians of the order of 0·35 were found to be highly significant when tested by the Sign Test. This test makes no assumptions concerning equal intervals within the scale nor gives weight to any differences in score beyond that of direction. It must be noted, however, that individuals who changed their scores on the same item because of different institutions rarely made extreme shifts: changes were mostly of one interval.

Since this was an investigation into change and comparability, and since the above items were selected by post-graduate course members, who were practising lecturers and teachers, on the assumption that the items were discriminants between college and school, it was not surprising that large differences were actually found.

The important differences, in a practical sense, are the largest ones. Statistical significance is usually an end product to the researchers; to the practitioner it is only one component of practical importance. For instance, from this evidence, does the need for 'humour' require to be considered in any future action compared to the call for more 'independence' in colleges and schools? It is very doubtful if it need be considered as a priority.

There is no reason to assume, however, that 'independence' or any of those other items are the only main discriminants. A further investigation which would ask students, instead of staff, to select possible discriminating items of behaviour and problems, would provide useful parallel comparisons.

With what degree of seriousness did the students complete the check lists? This cannot be assessed; there were, however, no spoiled papers and only one student marked all his/her 56 items on the fourth interval of the scales.

Were students affected by their college environment to produce answers biased towards college (Shipman 1967)? In other words, if they had completed the questionnaires in their schools, would schools have got off more lightly? This is a question needing experimental investigation to answer.

The Comparisons

An examination of the means of the differences between various medians shows, as might be expected, that there is the greatest difference in Comparison 1, with Comparison 4 next in rank order. Comparison 4 (School) has a greater difference on the whole than Comparison 3 (College), and this characteristic is again evident in the sub-totals 0·18/0·52 in Comparison 5.

Comparison 1: colleges compared to practice schools

The numbers in brackets refer to the items'rank orders of sizes of differences between median scores of the students when in various institutions.

Between actual colleges and practice schools the students produced large differences in behaviour which they felt called upon to make. There were seven items of behaviour on the scale with at least one full step or interval of scale of difference:

In *School*, one had to be *more* realistic, (2) practical, and (7) conforming, than in college.

In *College*, one had to be *more* (3) independent, (4) critical, (5) progressive, and (6) informal, than in school.

Overall, only 'humorous', 'sociable', and 'flexible' behaviour showed little difference. College seemed to call especially for 'individualistic' qualities and school for those arising from society; this can also be hypothesized with some justification in the following comparisons.

Comparison 2: Ideal college compared to ideal school

In the ideal college one would require to be *more* (1) critical and (2) independent than in the ideal school.

In the ideal practice school one would require to be *more* (*3*) realistic and (4) practical than in the ideal college.

The major differences here are fewer in number and, as one would expect, smaller in degree, than those in Comparison 1.

Comparison 3: Actual colleges compared with ideal ones

The ideal college would require more of the following items of behaviour than do colleges today: (1) independent, (2) critical, (3) progressive, and (4) *less* conforming. These major differences here are smaller in degree than in Comparison 2.

Comparison 4: Actual practice schools compared with ideal ones.

The ideal school would require more of the following items of behaviour than do schools today: (1) progressive, (2) independent, (3) *less* conforming, (4) informal, (5) critical and (6) *less* practical. These major differences are quite large.

Comparison 5: A table calculated to show the institution which has to change the more, aspect by aspect, in order to attain 'ideal' status.

Schools require to change their demands on the following items of behaviour much more than would colleges: (1) + (2) *more* progressive and *more* informal, and (3) *less* practical, and (4) *less* conforming.

Colleges would require to change less than schools on most items. The desire by students for more 'individualistic' behaviour would be felt more by the practice schools than by the colleges, if they were each to attain their 'ideal' status in students' eyes.

Problem check-list

Table 2 shows the frequency with which each of the 21 problems on the check-list was checked by the sample of 357 students.

Interpretation

'Professional' problems, such as 'pressure of work', appear much more frequently than do 'social' ones, such as 'problems with friends', in each institution, and colleges give rise to more problems in this list than do practice schools. Some of the most common problems, such as 'pressure of work' and 'lack of guidance', would require quite simple investigation by the staff.

If one may compare these results with Comparison 1's items of behaviour, and this is not quite justifiable, it appears that the 'individualistic' behaviour required by college may be related to increased problems, in this list, for the student.

Table 2: Frequency list of problems checked by students, for college and for practice schools

(1) Rank of Problem in Col. 6	(2) Code Number of Problem	(3) Description of Problem	(4) College		(5) School	(6) Cols 4+5
1	4	Pressure of work	229	**	179	408
2	10	Sense of not measuring up to what is required of you	122	*	157	279
3	3	Worry over money	143	***	92	235
4	16	Lack of guidance in the work you are doing	121		94	215
5	1	The attitude of the college staff/head teacher	109		92	201
6	7	Feeling you are not learning much	172	***	14	186
7	17	Worry about your future career	115	***	70	185
8	8	The thought of going back to college/school	126	***	51	177
9	12	Being uninterested in the work you are doing	150	***	11	161
10	20	Difficulty in coping with your work	85	*	56	141
11	6	The attitudes of other students	52	**	84	136
12†	18	Problems with girl friend	20	*	8	28
13†	19	Problems with boy friend	51	**	24	75
14	9	Restrictions and rules	55	**	32	87
15	13	Feeling shy or awkward	47		30	77
16	21	Worries about social relationships	41	*	24	65
17	15	Feeling lonely in the evenings/week-ends	36	*	20	56
18	11	Worries about dress and appearance	18		22	40
19	5	Worry about your speech	17		22	39
20	14	Unsatisfactory accommodation	16		15	31
21	2	Feeling lonely at work	19		15	34
Total number of problems checked			1744	***	1112	2856
Mean number of problems per student			4·9		3·1	8·0

The significance of the differences in the number of students checking problems experienced in college compared to school was examined by Chi-square and levels of significance listed as * ($P<0{\cdot}05$), ** ($P<0{\cdot}01$), and *** ($P<0{\cdot}001$).

† Weighted ratio 357/63 for the men and 357/294 for women.

Table 3: Frequency list† of problems checked by men* and by women, for college and for schools

(1) *Problem Number*	(2) PROBLEMS IN COLLEGE *Men* (Ratio)		*Women*	(3) PROBLEMS IN SCHOOL *Men* (Ratio)		*Women*	COLUMNS 2+3 *Men* (Ratio)		*Women*
10	61	**	109	84	**	139	142	***	248
3	173	***	106	107	*	69	280	***	175
16	75		105						
1				107	*	69			
17				84	**	52			
12	163	*	115						
9	89	***	36	51	**	21	140	***	57
Total 21 problems with men's frequencies weighted 294/63	1523	***	1329	1068	**	956	2591	***	2295
Mean of weighted frequencies	5·2		4·5	3·6		3·2	8·8		7·8

* Number of men in sample = 63. Number of women = 294.
The men's frequency numbers have been increased in this table by a factor of 294/63.
† Only those problems with the largest sex differences have been listed.

From Table 3 it appears that these men have overall more problems than their female colleagues, and they experience a wider range of problems, both in school and in college.

Younger Child Course students felt they were under more pressure of work in schools than their colleagues did. The other two problems differences concern quite small numbers of students.

Conclusions

Colleges were seen by their students as requiring 'individualistic' qualities of behaviour, while their schools made demands for qualities more necessary for 'society's' well-being, such as conforming, practical and realistic behaviour.

From an examination of a desirable direction of change, schools would need to change more radically and extensively than colleges, becoming especially more progressive and informal and less practical and conforming. The desire for more 'individualistic' behaviour generally, by students, would be felt more by schools than by colleges if this need were to be met.

Colleges gave rise to more problems for their students than did their practice schools and 'professional' problems such as 'pressure of work'

Table 4: Frequency list† of problems of each sex in college compared to schools

Problem Number	MEN *College*		*School*	WOMEN *College*		*School*
3				106	*	69
7	112	***	5	148	***	13
17				92	***	52
8	121	**	56	100	***	39
12	163	***	9	115	***	9
6				41	**	68
19				49	**	24

When men have problems these tend to occur in both institutions; women may escape from their problems when they change institutions. Problems 7, 8 and 12 affect sexes similarly.
† Only the problems with the larger college/school differences have been listed.

Table 5: Frequency list† of problems checked by younger/older children courses for college and schools

(1)	(2)		(3)		(4)	
Problem Number	PROBLEMS IN COLLEGE		PROBLEMS IN SCHOOLS		COLUMNS 2+3	
	Younger Course (ratio) of 294/156	*Older Course*	*Younger Course* (ratio)	*Older Course*	*Younger Course* (ratio)	*Older Course*
4			98 ***	72		
8	12	34				
9	14	37	9	20	23	57
Total for 21 problems with younger course weighted 294/156	751	812	535 *	609	1281 **	1421

Number of Younger Course students = 156
Number of Older Course students = 294

† Only those problems with the largest course differences have been listed

appeared much more frequently than 'social' ones, such as 'problems with friends.'

It is tempting, but perhaps unprofitable in this design, to consider the 'social-centred' behaviour demands of schools with the few social problems experienced by students, and the 'individualistic' demands of colleges with the many professional problems experienced. It seems that the direction of change in behaviour desired by students would not be a soft option for them.

There are incipient signs in this investigation of compartmentalization and lack of communication all round. Our experienced lecturers and school teachers were able to select items and problems which indeed discriminated between colleges and schools, but the colleges gained on the behaviour swings and the schools on the problems roundabouts; this was not hypothesized at all.

In practice, students' preferences are not automatically educational necessities, but schools might attempt to become more tolerant of 'individualistic' staff behaviour in student teachers or at least understand the desire for it.

In return, colleges might look at student problems more perceptively than they do. It is a sad finding that institutions which are, or have been *in loco parentis* find themselves compared thus unfavourably with the outside world of the practice schools of their students.

References

COHEN, L. (1968). 'College and training of teachers', *Educ. Res.*, **11**, 1, 14-22.

COPE, E. (1970). 'Teacher training and school practice', *Educ. Res.*, **12**, 2, 87-98.

SHIPMAN, M. (1967). 'Environmental influences on response to questionnaires', *Brit. J. Educ. Psychol.*, **37**, 54-57.

WARR, P. and KNAPPER, C. (1968). *The Perception of People and Events*. London: Wiley.

A WIDENING GAP BETWEEN STUDENTS OF SCIENCE AND ARTS

F. MUSGROVE *University of Manchester*

A QUESTIONNAIRE was used to investigate students' conceptions of an ideal university when they began their university course and again two years later. The results indicated that over a two-year period the students focused their attention on the academic aspects of university life and progressively de-emphasized those characteristics which are not central to success on a degree course. This process of focusing or convergence occurred among students in all fields of study. At the same time there was a process of divergence in the educational values of scientists and technologists on the one hand, and arts and social science students on the other. These two groups moved apart during the two-year period in their conception of an ideal university.

The changes that occur in university students during the course of their education have received little systematic study in England. Changes in knowledge and understanding are thought to be measured by formal examinations; changes in social perceptions and skills, in political and socio-moral values and attitudes have not been assessed. Assumptions are made that particular courses and curricula have a variety of consequences for students' personal development. These assumptions still await examination.

American work in this field is well established. Newcomb's (1943) pioneer study at Bennington examined the influence of inter-personal relationships in college on changing values and attitudes. More recently the Cornell Study of Values (Goldsen, 1960) has been concerned with attitudinal change in 11 university institutions. An intensive study of change in students' educational goals was made at Cornell with more than 600 male students. Over a two-year period they narrowed their concern to primarily academic goals. They were asked in 1950 and again in 1952 to indicate the emphasis they placed on six possible objectives of a university education: these related to academic learning, vocational preparation, social skills, knowledge of world problems, moral development, and preparation for a happy marriage. Academic learning received greater emphasis, but vocational preparation and social skills received less.

These trends occurred 'not only in Cornell's College of Arts and Sciences, where emphasis on a basic general education is prevalent; the pattern appeared as well in the College of Engineering, where emphasis on general education is less widespread, and where the majority of students stress vocational training in college over all other educational aims . . . In short, while it is true that the campuses offer a wide range of possible educational values for the American college student, it is also true that something occurs in the college years that encourages and reinforces an academic point of view and that is less nurturing of the vocational approach to education . . . The college years, moreover, sharply undermine any tendency to assert that non-academic educational goals are of principal importance.'

The Inquiry

Changes in the educational values of students at the University of Bradford have been investigated in three stages. In 1965-66 48 students drawn from the four-year degree course and from the four main academic areas were interviewed.

Each interview lasted for two hours, and the student was asked about his notion of an ideal university and about the characteristics of Bradford as he had experienced and perceived them. The questionnaires used in the inquiry reported below were based on statements made about the ideal university. (When making these statements students frequently referred to Oxford and Cambridge, the well established civic universities and the completely new foundations of the last decade. They appeared to have quite sharply defined images of these different categories of university.)

No statement was used as a questionnaire item unless it had been mentioned by at least half of those interviewed. The items are verbatim statements and, while they were clearly meaningful and unambiguous to the students in the context of their own university, might not have the same significance for students elsewhere. But on re-test two years later, the students were still in the same university, and the comparison is between the significance attached to the same statements in the same context at different periods of time.

Freshmen entering the University of Bradford in October 1966 were asked to complete the questionnaires as a means of discovering their educational values. The distribution of educational values among these freshmen has been previously described (Musgrove, 1968). This paper reports a follow-up study of the same students after they had been two years in the University (1966-68), and examines the changes that had occurred. The total number of students was 433 (403 men, 30 women). One hundred and thirty-four were in departments of arts and social science, 299 in departments of science and technology. Fifty-nine of the latter had spent periods in industry on a 'thin-sandwich' degree course.

The instrument used in 1966 and again in 1968 was a questionnaire which asked students to rate on a five-point scale 25 characteristics of an ideal university. Each characteristic was rated: 1. Absolutely essential 2. Important but not essential 3. Of only moderate importance 4. Of little importance or 5. Of no importance at all.

Results

The interviews carried out in 1965-66 had indicated that students of science and technology differed markedly in their educational values from students of modern languages and the social sciences. There appeared to be a trend toward a more extreme divergence of values in the senior years.

Twelve randomly selected students were interviewed from each of the University's four boards of studies; engineering, natural sciences, life sciences, and social sciences. They were asked whether students in different academic areas appeared to be pursuing different educational objectives. This question elicited generally critical comments from social science students about their fellow students in the science and engineering areas, and vice versa. Students of science and engineering were seen as socially conformist, docile, career-orientated, learning their subjects by rote rather than independent thought, without interest in people, and too heavily timetabled to develop any social life outside their immediate study programmes. Students of social science were seen by the scientists and technologists as largely incomprehensible (whose purposes at the University were quite unclear), idle, exhibitionist, and in soft options which made negligible intellectual demands.

Numbers were too small to establish whether the gap between scientists and social scientists was greater in the later year groups, although there seemed to be a trend in that direction. The questionnaire study was designed to reveal more precisely whether such a trend existed.

The picture that emerges from the questionnaire study is of general stability of educational values: the majority of items were rated similarly in 1968 and 1966. But when the ratings made in 1966 were compared with the ratings by the same students, two years later, a process of 'convergence' or focusing on central academic objectives was apparent. Six out of the 25 items were given less emphasis after two years by students throughout the University. (A list of the items is given in the Appendix.) There were no significant variations on these items among different student categories, for example, males and females, social science and engineering students, students who had had periods in industry and those who had not. The six de-emphasized items refer either to vocational preparation or to social and interpersonal skills and experiences.

Table 1 gives the items which were significantly de-emphasized and shows the percentage of the 433 students who gave a high rating (1 or 2) in 1966 and in 1968.

Although there was a swing throughout the University against vocational preparation, it was significantly greater among arts and social science students.

The six items listed in Table 1 received a diminished emphasis, but even after two years a high proportion of the students still gave them considerable weight. Five of the items were still rated 'Absolutely essential' or 'Important but not essential' by more than 70 per cent of the students, and the sixth by almost 70 per cent. De-emphasis is relative to the very considerable weight attached to these characteristics two years earlier.

There was change in some sub-groups which did not occur throughout the entire population of students. Students of science and technology gave significantly less emphasis to the item: 'Has

Table 1: Characteristics de-emphasized throughout the university 1966-1968
(N = 433)

ITEM AND PER CENT GIVING (a) GREATER EMPHASIS (b) LESS EMPHASIS (c) THE SAME EMPHASIS	z†	P	% RATING 1 OR 2 IN 1966	% RATING 1 OR 2 IN 1968
1. Provides a wide education around a student's special subject (a) 12·5 (b) 43·3 (c) 43·9	—8·7	0·01	92·2	79·1
2. Has a good community spirit (a) 12·4 (b) 42·2 (c) 45·3	—8·3	0·01	89·3	75·7
3. Provides opportunities for improving students' social skills and confidence (a) 16·2 (b) 40·2 (c) 43·6	—6·6	0·01	86·7	72·2
4. Provides practical training in industry or other organizations (a) 17·5 (b) 35·6 (c) 46·9	—5·4	0·01	85·9	72·4
5. Is concerned with preparing students for a vocation or occupation (a) 14·8 (b) 35·3 (c) 49·9	—5·5	0·01	89·0	78·3
6. Provides plenty of opportunity for informal discussions with fellow students (a) 22·6 (b) 34·7 (c) 42·7	—3·3	0·01	75·1	67·8

†McNemar's critical ratio for correlated data.

Table 2: Emphasis on vocational preparation

STUDENTS	EMPHASIS *Greater*	*Less*	*Same*
Science and Technology (N = 299)	15·4% (46)	27·7% (83)	56·9% (170)
Arts and Social Science (N = 134)	13·4% (18)	52·3% (70)	34·3% (46)

chi-square = 25·31 d.f. = 2 P<0·01

Table 3: Items given greater emphasis by sandwich course students
(N = 59)

ITEM AND PER CENT GIVING (a) GREATER (b) LESS (c) SAME EMPHASIS	z	P
1. Treats students as if they're grown up, not as if they're still at school (a) 23·7 (b) 8·5 (c) 67·8	+2·06	0·05
2. Takes students from all over the country, and not mainly from its own region or locality (a) 47·4 (b) 16·9 (c) 35·6	+2·93	0·01

students who are, for the most part, of good social standing and background' ($z = -3{\cdot}68$ $P < 0{\cdot}01$). They gave little weight to the item initially (only 10·4 per cent rated it 1 or 2 in 1966): they gave still less weight in 1968 (when 3·5 per cent rated it 1 or 2). (Only 7·0 per cent of the social science students gave this item a high rating in 1966, 1·2 per cent in 1968.)

There was significantly greater emphasis by 186 men in eight science and technology departments on the item: 'Provides plenty of opportunity to meet the opposite sex' ($z = +5{\cdot}2$ $P < 0{\cdot}01$). These were departments in which less than one-third of the students were females; no such change occurred in departments with a higher proportion of females. Those students of science and engineering who had been into industry for a period of training placed significantly more emphasis on the items given in Table 3.

Female students, predominantly modern linguists, tended to de-emphasize those characteristics which are perhaps associated with new-style (Sussex and Essex-type) universities. Table 4 shows the items to which they attached less emphasis after two years at Bradford.

The second process apparent from the analysis of responses is one of divergence between the students of science and technology on the one hand, and of arts and social sciences on the other. In 1966 these two groups of students differed significantly on only two of the 25 items (and differed at a level approaching statistical significance on a further two). In 1968 they differed significantly on nine items, and differed at a level just short of statistical significance on a further three.

Table 4: Items de-emphasized by female students
(N = 30)

ITEM AND PER CENT GIVING (a) GREATER (b) LESS (c) SAME EMPHASIS	z	P
1. A good deal of teaching in small tutorial groups (a) 3·3 (b) 30·0 (c) 66·7	—2·53	0·01
2. Is in a parkland or rural setting (a) 13·3 (b) 40·0 (c) 46·7	—2·00	0·05
3. Provides an opportunity to meet people of different backgrounds (a) 10·0 (b) 53·3 (c) 36·7	—2·98	0·01
4. Has students who have interesting views and ideas (a) 13·3 (b) 56·7 (c) 30·0	—2·83	0·01

These differences are in the direction that common sense suggests with the exception, perhaps, of the item concerning 'the relevance of learning to the real world'. Scientists and technologists give this considerable emphasis, but arts and social science students give it still more.

Table 6 shows the difference between these two broad student groups after two years. While most of the difference is once again in the expected direction, the greater emphasis now given by scientists and technologists to 'improving social skills and confidence' perhaps reflects their use of the University for professional socialization.

Discussion

It may be the case that the technological universities suffer in an acute form from a value-gap between students (and perhaps staff) in the

Table 5: Different emphases by science and technology students and arts and social science students on entry

ITEM	PER CENT RANKING 1 or 2	C.R.	P
1. Is concerned with the relevance of learning to the real world			
Arts and Social Science (N = 85)	90·6	2·69	0·01
Science and Technology (N = 260)	77·3		
2. Provides plenty of opportunity for participation in political clubs			
Arts and Social Science (N = 85)	45·9	3·48	0·01
Science and Technology (N = 260)	25·8		
3. Provides practical training in industry or other organizations			
Arts and Social Science (N = 85)	80·0	1·77	P0·05 = 1·96
Science and Technology (N = 260)	87·7		
4. Provides plenty of opportunity for cultural activities			
Arts and Social Science (N= 85)	72·9	1·78	P0·05 = 1·96
Science and Technology (N = 260)	62·3		

Table 6: Different emphases by science and technology students and arts and social science students after two years

ITEM	PER CENT RANKING 1 OR 2	C.R.	P
1. Gives you the opportunity to do a considerable amount of work on your own			
Arts and Social Science (N = 85)	92·9	1·96	0·05
Science and Technology (N = 260)	84·1		
2. Provides practical training in industry or other organizations			
Arts and Social Science (N = 85)	52·9	4·64	0·01
Science and Technology (N = 260)	78·8		
3. Has students who have interesting views and ideas			
Arts and Social Science (N = 85)	77·7	2·42	0·05
Science and Technology (N = 260)	63·5		
4. Is concerned with learning for its own sake, without regard for its practical applications			
Arts and Social Science (N = 85)	20·0	2·67	0·01
Science and Technology (N = 260)	9·2		
5. Provides plenty of opportunity for participation in political clubs			
Arts and Social Science (N = 85)	44·7	3·36	0·01
Science and Technology (N = 260)	25·4		
6. Provides plenty of opportunity for informal discussions with fellow students			
Arts and Social Science (N= 85)	76·8	1·96	0·05
Science and Technology (N = 260)	65·0		
7. Provides opportunities for participation in indoor sports			
Arts and Social Science (N = 85)	49·4	2·30	0·05
Science and Technology (N = 260)	63·5		
8. Is concerned with preparing students for a vocation or occupation			
Arts and Social Science (N = 85)	64·7	3·50	0·01
Science and Technology (N = 260)	82·7		
9. Provides opportunities for improving students' social skills and confidence			
Arts and Social Science (N = 85)	58·8	3·16	0·01
Science and Technology (N = 260)	82·7		
10. Has distinguished scientists and scholars on the staff who are well known for their research			
Arts and Social Science (N = 85)	56·5	1·76	P0·05 = 1·96
Science and Technology (N = 260)	45·5		
11. Provides plenty of opportunity for cultural activities			
Arts and Social Science (N = 85)	76·4	1·76	P0·05 = 1·96
Science and Technology (N = 260)	66·2		
12. Has a good community spirit			
Arts and Social Science (N = 85)	68·2	1·85	P0·05 = 1·96
Science and Technology (N = 260)	78·1		

fields of science and engineering, and in the fields of social science and the arts. But they have a continuing tradition of general studies which might be expected to moderate both the tendencies described in this paper. Courses in science and society for social science students, and in social science and the humanities for students of science and technology, might be expected both to widen all students' intellectual interests and at the same time bring students in different academic areas into closer accord and sympathy. In fact social science and arts students on the one hand and science and technology students on the other moved further apart. Without a programme of general studies they might, of course, have moved still further apart.

The process of 'convergence' and de-emphasis on educational goals which have no direct bearing on one's academic course is similar to the process revealed in America in the Cornell Study of Values. Perhaps students learn to attach most value to those activities which universities formally reward through their examination system.

The different educational values of arts and social science students and of science and technology students have been the subject of widespread comment in recent years. This study suggests that the university experience itself may play a major part in promoting this divergence. The mechanisms by which this occurs await further study.

Appendix

Characteristics of an Ideal University in Rank Order of Importance (1968) (Items de-emphasized in italics)

1. Has lecturers who can teach clearly and 'put their subject across'.
2. Treats students as if they're grown-up, not as if they're still at school.
3. A good deal of teaching in small tutorial groups.
4. Gives you the opportunity to do a considerable amount of work on your own.
5. Easy informal contacts with staff.
6. Is concerned with the relevance of learning to the real world.
7. Provides plenty of opportunity to meet the opposite sex.
8. *Is concerned with preparing students for a vocation or occupation.*
9. Takes students from all over the country and not mainly from its own region or locality.
10. *Provides a wide education around a student's special subject.*
11. *Has a good community spirit.*
12. Plenty of opportunity for sports and athletics.
13. *Provides plenty of opportunity for informal discussions with fellow students.*
14. *Provides opportunities for improving students' social skills and confidence.*
15. *Provides practical training in industry or other organizations.*
16. Provides plenty of opportunity for cultural activities (music, drama, etc.).
17. Provides an opportunity to meet people of different backgrounds.
18. Has students who have interesting views and ideas.
19. Provides opportunities for participation in indoor sports.
20. Has distinguished scientists and scholars on the staff who are well known for their research.
21. Is mainly residential.
22. Provides plenty of opportunity for participation in political clubs.
23. Is in parkland or a rural setting.
24. Is concerned with learning for its own sake, without regard for its practical applications.
25. Has students who are, for the most part, of good social standing and background.

References

GOLDSEN, R. K. *et al.* (1960). *What College Students Think.* Princeton, New Jersey: Van Nostrand.

MCNEMAR, Q. (1962). *Psychological Statistics.* New York: Wiley.

MUSGROVE, F. (1968). 'Educational values in a technological university', *Durham Res. Rev.*, **5**, 230-38.

NEWCOMB, T. M. (1943). *Personality and Social Change.* New York: Dryden Press.

THE EFFECTS OF COUNSELLING ON RETARDED READERS

D. LAWRENCE *Schools Psychological Service, Somerset County Council*

THE AIMS of this study were to investigate the effects on reading attainment of individual personal counselling compared with the results obtained by a traditional remedial reading programme, and to consider the association between certain personality characteristics and reading retardation. Four groups, each containing twelve primary school children retarded in reading, were matched, and each group subjected to different treatments. At the end of a six-month period the children in the counselled group showed a significant rise in reading attainment over all other groups, together with improved self-images as measured on the Children's Personality Questionnaire.

'Educational failure is personal failure' (NFER 1968). The retarded reader sees himself not only as an inferior reader but as an inferior person. Since reading is a skill which adults around him regard as important, failure in this area tends to invade the whole personality. The result is a child who has come to accept failure as inevitable and whose natural curiosity and enthusiasm for learning remain inhibited.

The retarded reader comes to the learning situation poorly motivated and lacking in confidence in his ability to learn. Apart from the adoption of a generally encouraging attitude, however, there is rarely a systematic attempt on the part of the teacher to improve the child's level of motivation. It is suggested in this article that in the treatment of retarded readers more attention should be paid to the child's emotional life. The usual system is to focus primarily on cognitive factors—on the diagnosis and treatment of perceptual disabilities, for instance, despite the fact that one of the retarded reader's most outstanding characteristics appears to be his poor emotional adjustment.

Dr. Joyce Morris concluded in the Kent Survey (1966) that many poor readers became withdrawn, depressed, anxious for adult interest and affection, hostile, indifferent to adults, anxious to gain acceptance and prestige among other children, hostile to other children and generally restless. The results of the experiment referred to in this article would seem to confirm Dr. Morris's observations. On the 'O' Factor of the Cattell Children's Personality Questionnaire, retarded readers scored significantly higher than good readers. Cattell describes a high score on this factor as indicating an 'apprehensive, worrying, depressed, guilt-prone' tendency.

A School's Council report (1970) emphasizes that much educational retardation occurs as a result of psychological deprivation. These children come to school already lacking in enthusiasm and curiosity for learning and probably with unsatisfied emotional needs. Whether the self-image and poor emotional adjustment of the retarded reader is a consequence or a cause of his reading problem, the end result is the same—poor motivation.

The recent work of Rosenthal (1969) illustrates the effect on the child's attainments of the particular attitude adopted by the teacher. The results of the experiment referred to in this article would seem to further confirm the importance of the

---

Acknowledgement
The writer wishes to express his thanks particularly to Mr. C. Toomer, who carried out the remedial reading programme, and also Messrs. B. M. Hearn, T. W. Wisdom and T. Jones, headteachers, who kindly co-operated throughout the experiment.

quality of the personal relationships and the need to focus attention on the child's emotional life. The counselling method outlined in this experiment suggests a technique which could be used by any sympathetic person interested in the remedial treatment of retarded readers. Various writers have shown that personal counselling can be carried out by non-specialists. 'There is extensive evidence to indicate that lay persons can be trained to function at minimally facilitative levels of conditions related to constructive client change' (Carkhuff, 1968). This experiment was carried out to investigate the hypothesis that it would be possible to improve the child's general level of motivation and ultimately his reading attainment by allowing him regular opportunity to express his personality in the company of a sympathetic adult.

Design of experiment

Four schools were selected as being typical village schools in a rural community. The children in these schools who were considered by their head teachers to be retarded in reading were then given the Schonell Word Recognition Test, the Sleight Non-Verbal Intelligence Test and the Porter and Cattell Children's Personality Questionnaire. The CPQ was also given to a random sample of good readers.

It was found possible to match twelve children in each school on chronological age, sex, mental age and reading attainment. Each group contained eight boys and four girls.

Group 1. Received remedial reading from a specialist teacher for six months. *Group 2.* Received remedial reading plus counselling for six months. *Group 3.* Received counselling only for six months. Each child was seen individually for 20 minutes each week. *Group 4.* Was a control group and received no special treatment.

All children were re-tested after six months in the Schonell Word Recognition Test. The Children's Personality Questionnaire was also given again at the end of the experiment to assess any significant change in personality profile.

Parents were not interviewed as it was felt that interviews could not easily be controlled and some parents would not possibly be able to co-operate. If this kind of counselling programme was to be of any practical value to teachers it also had to be as simple as possible.

Method used with counselling group

Basically this involved a responsible, sympathetic adult, with status in the eyes of the child, communicating to the child that he enjoyed his company.

1. The counsellor introduced himself as a person interested in children and who liked to ensure that they were happy in school.

2. The establishment of an uncritical, friendly atmosphere, involving total acceptance of the child's personality was attempted.

3. The counsellor tried to provide a sounding-board for the child's feelings—direct interpretation was avoided (Rogers, 1965).

4. The interview was child-centred throughout.

5. As a rule direct questioning was avoided. Questions that were asked were posed in a general way except when presenting the Self-Concept Questionnaire (Table 7).

6. Discussion at first was sometimes only possible through the medium of drawings and pictures. The child was asked to draw a picture. In later sessions other pictures were used as a further stimulus to feelings, e.g. 'Children's Apperception Test' pictures (Bellak, 1954).

7. Early in the period he was asked for three main wishes and each discussed more fully.

8. Throughout the interview the counsellor tried to be alert for opportunities of praising the child's personality (not his skills), and in so doing, building up his self-image.

9. The following areas of the child's life were covered over the counselling period: relationship with parents; relationship with siblings; relationship with peers; relationship with other relatives; hobbies and interests; aspirations, immediate and long-term; worries, fears, anxieties; attitude towards school, and attitude towards self.

This procedure and framework were flexible and varied with the particular child and his needs as well as his moods.

Table 1: Showing means and standard deviations for chronological age, intelligence and reading age as matched at the beginning of the experiment

Group		Chronological Age	Mental Age	Reading Age
R	x̄ =	8·6	7·7	6·2
	SD =	1·18	1·04	1·23
R. + Co.	x̄ =	8·6	7·7	6·9
	SD =	1·14	1·32	1·22
Co.	x̄ =	8·7	8·4	6·8
	SD =	1·04	1·18	1·14
C	x̄ =	8·9	7·9	6·5
	SD =	1·26	1·54	1·18

Results

R = Remedial reading only
R. + Co. = Remedial reading + counselling
Co. = Counselling only
C = Control group. No treatment

Results from 11 children only were treated statistically owing to the fact that one child left the area from the R Group and also from the R. + Co. Group.

Individual summary record of counselled group

Case 1. (RS)

R presented as a shy, timid, but friendly little boy. This shyness was confirmed on the CPQ test with a score markedly deviating from the average. On a self-concept questionnaire he revealed that he always felt stupid. R was the eighth of ten children and was insistent that he preferred school to home, where his parents were infirm—father with arthritis and mother with varicose veins. He seemed to accept that they could not spare him much time. It was probably significant that he said he often dreamed of his girl-friend. He loved to talk of this person, but only in later sessions did he confess that she was married.

It seemed that his need to feel affection was being projected on to this person. His three wishes were for a bicycle, a car and a football. Throughout the programme he revealed a strong

Table 2: Reading ages before and after treatment together with calculated gains

R + Co.			Co.			R			C		
Before	After	Gains	Before	After	Gains	Before	After	Gains	Before	After	Gains
5·1	5·9	0·3	5·3	6·1	0·3	7·2	8·1	0·4	6·6	6·9	—0·2
5·7	7·2	1·0	7·0	8·2	0·7	5·7	7·5	1·3	5·8	6·5	0·2
7·7	8·3	0·1	6·6	8·1	1·0	5·8	5·9	—0·4	6·7	7·2	0
7·7	8·6	0·4	6·5	8·0	1·0	5·5	6·0	0	8·7	8·6	—0·6
8·1	9·1	0·5	5·1	7·3	1·7	7·4	8·1	0·7	5·2	5·2	—0·5
7·9	9·0	0·6	7·3	8·0	0·2	6·6	8·2	0·3	5·4	5·4	—0·5
5·6	6·4	0·2	8·6	9·7	0·6	8·9	9·1	—0·3	5·5	6·3	0·3
8·1	8·5	0·9	6·6	7·9	0·8	8·2	8·1	0·4	6·7	7·4	0·2
8·3	9·2	0·4	7·9	8·1	0	5·4	7·3	1·4	5·6	5·5	—0·6
6·0	7·3	0·8	7·7	8·4	0·2	7·3	7·7	—0·1	5·4	5·6	—0·3
5·4	6·0	0·1	5·5	6·0	0·3	5·1	5·5	0	8·7	9·0	—0·2
	x̄ = 0·49			x̄ = 0·61			x̄ = 0·33			x̄ = 0·2	

N.B.: A 'rise' in reading attainment is not, of course, necessarily a 'gain'. Allowance has to be made for the fact that the children were six months older at the end of the experiment.

Table 3: 'T' test to determine the reliability of the means reading ages within each of the groups at the end of the experiment

R + Co.	Co.	R	C
x̄ = 0·49	x̄ = 0·61	x̄ = 0·33	x̄ = —0·2
SD = $\sqrt{0{\cdot}095}$	SD = $\sqrt{0{\cdot}215}$	SD = $\sqrt{0{\cdot}228}$	SD = $\sqrt{0{\cdot}051}$
t = 5·2	t = 4·5	t = 2·3	t = 2·93
P = <0·001	P = <0·001	P = <0·05	P = <0·02

Table 4: Comparing 'O' factor score (on CPQ) of counselled group with randomly selected group of 9 good readers in same school

COUNSELLED	GOOD READERS
9 out of 11 had above average score	All had below average score

		Reading attainment		
		Poor	Good	
'O' Factor	—	2	9	11
	+	9	0	9
		11	9	20

chi-square = 10.3 P = approx. 0·001

Table 5: Comparing change in 'O' factor score in counselled group (on CPQ) before and after treatment

BEFORE	AFTER
9 with above average score	2 with above average score

		Reading attainment		
		Before	After	
'O' Factor	—	2	9	11
	+	9	2	11
		11	11	22

chi-square = 8·1 P = 0·01

Table 6: Comparing average differences in gains in reading attainment

MANN-WHITNEY 'U' TEST

Group	'U'	Sig. Level
R. & Co. & R	48	NS
Co. & C	18	0·01
Co. & R	9	0·001
R. & Co. & Co.	54	NS

compensation for inferiority feelings, e.g. 'I can climb trees better than any of my family'. In the CAT pictures his interpretations were notable in that the baby was always getting into trouble through doing stupid things, i.e. standing on mother's foot and causing her to drop her basket; mother smacking baby for playing in mud. There was also indication of his feeling of rejection, i.e. parents unhappy because they wanted a different baby.

This boy made the most progress in reading (*SWR 5·1—7·3 years*).

Case 2 (*SR*)

This boy came out on the CPQ test markedly introverted with strong guilt feelings and a poor self-image. His stories on CAT pictures revolved around 'not being liked by other people'. This made him angry. He makes a mess in the home and his mother is cross. He worries about this, wishing he could be good. He is told off in front of visitors and this makes him angry. On a self-concept questionnaire he indicated that he felt it was always best to be a nice person—he did not feel this. S shone at drawing and his parents praised him for this. He insisted he disliked drawing and one day confessed that he only said this because he knew they were only trying to make him feel better since it was reading which he really cared about. This he worried about in bed at night. He also worried about the house father was rebuilding while they lived alongside, in a caravan. He wondered if it would fall. He worried about his parents' talk of going to Australia to live. He worried about his younger sister being cleverer—she could read. He worried about his mother being pregnant and perhaps another competitor. There were flashes of compensation for these feelings of inferiority, e.g. 'I can now run 100 yards in 11 seconds'. He had no hobbies apart from drawing which he resented. (*SWR 7·7—8·7 years*).

Case 3 (*SB*)

On the CPQ test all this boy's scores lay within the average range. He presented on interview as a pleasant, cheerful boy lacking in drive. Whatever type of conversation was introduced he had not strong feelings about it. On the CAT Picture test, all his stories emphasized this attitude—no tensions, strains or stresses, e.g. the fierce tiger was

Table 7: Self concept questionnaire

I always feel STUPID	Sometimes I feel CLEVER and sometimes I feel STUPID	I always feel CLEVER
I feel I am NOT very GOOD-LOOKING	Sometimes I feel GOOD-LOOKING and sometimes NOT GOOD-LOOKING	I feel I am VERY GOOD-LOOKING
I am NEVER a NICE person	Sometimes I am NICE but sometimes I am NOT NICE	I am ALWAYS a VERY NICE person
I am ALWAYS AFRAID of things	Sometimes I am AFRAID and sometimes I am NOT AFRAID	I am NEVER AFRAID of things
I am a VERY NAUGHTY person	Sometimes I am NAUGHTY and sometimes I am GOOD	I am ALWAYS a VERY GOOD person

portrayed as benevolent at first, but later given the opposite role. He was not sure whether his parents knew that he was a poor reader. 'They have never asked me'. He talked easily about his life on the farm where he helped his father and intended to become a farmer himself one day. He said he did not mind being a poor reader. All the interviews were notable for the completely relaxed atmosphere he created. This boy made the least progress in reading of any in the group. (*SWR 7·9—8·1 years*).

Case 4 (*TS*)

This girl on the CPQ test came out as markedly introverted with high guilt score. The first session was notable for her total inability to converse, confirming the high introversion score. In later sessions, however, she chattered incessantly about herself, her poor school work and her family. She indicated that she always felt stupid and that 'to be clever' was the most important thing. 'Daddy says I'm stupid' was an often repeated statement, said with no feeling, just acceptance of the inevitable. This child showed more worries and anxieties than any other member of the group. She was not an unattractive child to look at but wore glasses and hated it—'I'm so different from the others'. The CAT stories were notable for their recurrent themes of anxiety and family insecurity. I later found that her father had been blinded in an accident and her mother had left home. She was looked after by her grandmother. Throughout she insisted on saying 'I cannot read and I never will be able to read'. In fact, she did make some progress but again she denied this. (*SWR 5·3—6·1 years.*)

Discussion

The original hypothesis that it is possible to raise the level of reading attainment in a group of retarded readers through a process of individual personal counselling would appear to have been confirmed. The counselled group made the most progress in reading attainment compared with all other groups. The difference between this group and the other groups proved to be statistically significant in each case, except when compared with the group which received remedial reading combined with counselling.

The children in the counselled group were judged by their teachers to be more enthusiastic and confident in class the longer the experiment progressed.

The personality testing on the Cattell Personality Questionnaire at the start of the experiment indicated that all but two retarded readers in the counselled group had a higher than average 'O' factor score. Cattell regards this as an indication of 'troubled, guilt-prone behaviour associated with a poor self-image'. It is interesting that a randomly tested group of good readers in the same school tested on the same test had without exception a below average score on the 'O' factor. That poor performance in reading would appear to be associated with a poor self-image received further confirmation from the conversation of the individual children in the counselled group. At the conclusion of the experiment only two children in the counselled group had a higher than average 'O' factor score. It would appear to be a further indication of the success of the programme.

From the individual summary record of the counselled group it looks as if retarded readers tend to have unsatisfied emotional needs but without specific symptoms of emotional maladjustment. None of the group was considered by his teacher to be emotionally disturbed or in need of treatment.

The two children in the counselled group who did not show a high guilt score at the outset were the two members of the group who had made the least progress at the end of the experiment. All the responses of SB (Case 3) seemed to be within the normal range. This boy appeared to be unusually content, even with his school failure, but not in an apathetic way. It might just be possible that some children are retarded in reading but with no associated emotional dissatisfactions. Increased motivation in this case would perhaps have been better achieved by making more demands on the child in the learning situation, rather than through a counselling programme.

The second child who made least progress in the counselled group showed a very high level of anxiety on the Cattell test and it was later discovered that she came from a particularly disturbed home background. She seemed a tense, restless child throughout the experiment and would probably have been better helped by referral to the Child Guidance Centre for a fuller psychiatric diagnosis. Counselling at this level of help could not be expected to help the severely emotionally disturbed child, and more specialist treatment would be indicated.

A third child who made less progress than all but the two just mentioned was later shown to have a neurological handicap and to be receiving medical treatment.

Most of the children's problems appeared to stem from the family relationships. This was not unexpected but the fact that the children appeared to derive benefit from talking of their problems to the counsellor without his involving the families raises interesting possibilities.

Given that educational retardation is often the result of poor home conditions we seem to be faced with the mammoth task of having to improve the home background before being able to effect any change in the child's attitudes. With the present general shortage of personnel in the educational and social fields this presents an almost insurmountable problem. The present experiment into the effects of individual counselling would seem to indicate that we can tackle the problem at this level of help without necessarily needing to interview parents.

Conclusion

In most cases of reading retardation it should be possible to increase the general level of motivation by planning a personal counselling programme. Where possible the selection of children for a counselling programme should be made in consultation with the school psychologist to eliminate those children who may, in fact, be in need of more specialized help.

The personal counselling described in this study probably could have been carried out by any sympathetic, intelligent layman, with a brief instruction in the techniques outlined. Expert psychological or psychiatric knowledge is not necessary.

References

Bellak, L. (1954). *The TAT and CAT in Clinical Use.* London: Heinemann.[1]

Cox, M. ed. (1968). *The Challenge of Reading Failure.* Slough: NFER.

Morris, J. M. (1966). *Standards and Progress in Reading.* Slough: NFER.

Porter, R. B. and Cattell, R. B. (1959). *Technical Handbook for the CPQ.* Illinois: IPAT.[1]

Rogers, C. R. (1965). *Client-Centered Therapy.* Boston: Houghton Mifflin.

Rosenthal, R. and Jacobsen, L. (1968). *Pygmalion in the Classroom.* New York: Holt.

Schools Council. (1970). *Cross'd with Adversity.* Working Paper 27. London: Evans/Methuen.

[1] *Available from the NFER Publishing Co. Ltd., Windsor, Berks.*

THE ATTITUDES OF TEACHERS OF ESN AND NORMAL PUPILS

M. O. A. DUROJAIYE[1] *University of Ibadan, Nigeria*

This reports the results of a study carried out in the north of England to compare the attitudes of teachers of educationally sub-normal and normal children in special schools, junior schools and secondary modern schools. Teachers answered questions about their experience and qualifications, contact with parents, attitudes to children and satisfaction in teaching. Teachers in special schools tended to show attitudes similar to those of parents or social workers. They appeared better trained for the task in hand, more interested in their pupils, more concerned about their job and more satisfied generally.

In a general discussion of types of teaching, an educational philosopher (Wilson 1965) suggested that 'we might almost venture on a totally new approach to education, and say that instead of thinking first of the content of education and only afterwards of the context, we shall reverse the order'. Psychologists would certainly agree with him. It is now generally accepted that learning context is important for efficient learning. There is probably no other type of learner for whom the context of learning is more important than educationally subnormal pupils. Similarly there is no other aspect of the context of learning that is as important as the teacher who creates this context.

The attitude of the teacher is an important factor in this rubric. Thus Wilson (1962) made a relevant statement for teachers of ESN pupils in particular, when in a sociological analysis of the teacher's role, he argued that the teacher's role must become more diffuse. 'The diffuse role means diffuse involvement.' It should also be broadened in scope to embrace more 'parental' skills calling for the skills and interest of the social worker (Mays 1962). This report gives the result of a study carried out to compare the attitudes of teachers of ESN and non-ESN children on this issue.

Method

The subjects were 100 teachers selected from the same large local education authority area in the north of England. They consisted of:

(i) 20 teachers from special schools for educationally subnormal children (11 males and 9 females).

(ii) 20 teachers in charge of special classes for ESN pupils in ordinary junior schools (10 males and 10 females).

(iii) 20 teachers in charge of non-ESN pupils in ordinary junior schools (8 males and 12 females).

(iv) 20 teachers in charge of special classes for ESN pupils in ordinary secondary modern schools.

(v) 20 teachers in charge of non-ESN pupils in ordinary secondary modern schools (10 males and 10 females each).

The 100 teachers were selected at random from 32 schools in all: two special schools for ESN pupils, 20 junior schools with special classes for ESN pupils and 10 secondary modern schools with special classes for ESN pupils.

Each teacher was given a questionnaire by the investigator who personally returned at an agreed date to collect it. It supplied personal data, an account of teachers' actual experience and involvement with their pupils and pupils' parents and their opinion about some aspects of their role as teachers. It was divided into four sections. The first section dealt with experience and qualification, and included questions on how long they had been teaching and what sort of classes and types of children they had taught in the past. It asked about their training and academic qualifications and their previous experience in other walks of life apart from teaching. Questions were put to them about how they came to be teaching the classes they had at the time of the investigation and whether or not their post carried any allowance.

---

[1] Dr. Durojaiye was a senior educational psychologist in England. He is now at Makerere University, Uganda.

Section B asked how often teachers saw their pupils' parents during the year under investigation, and how many parents were seen for the purposes of discussing pupils' academic performance, social behaviour at school, emotional states at school, physical appearance, health, home condition as reflected in children's behaviour at school, and parents' plans for pupils' future.

Section C surveyed teachers' attitudes by asking them to indicate their agreement or disagreement with some views and opinions put to them concerning the degree of their personal involvement with their pupils and their participation with pupils in decision making for class activities. Questions were asked about classroom atmosphere and what teachers considered their duties to be. They were also asked to describe their relationship with their pupils.

Finally, Section D requested teachers to state their major satisfaction and frustration during that year, and whether, if they had free choice, they would choose to teach the same classes, or in the same schools in the following year.

Results

Experience and qualifications

Teachers in charge of ESN pupils in special schools tended to be older and to have been teaching for longer periods of time than teachers in charge of the other four types of classes. Similarly, more teachers of special schools indicated that they had received two or more years of teacher training than did other teachers in the study. More of the special school teachers had also had experience in business and other occupations. At least 75 per cent of teachers in each group had received teacher-training. Also over half of the teachers in charge of ESN pupils in special schools said they had received special training for teaching slow learners. Against this, only 20 per cent of teachers in charge of special classes of ordinary junior schools and 15 per cent of those in special classes of secondary modern schools received special training. The resulting chi-square values are significant.

Although most of the teachers from each of the five types of classes had attended further special courses for short periods, 85 per cent of teachers in special schools said they had attended such special courses for at least one year. This compared favourably with 45 per cent of junior schools special class teachers, 40 per cent of secondary modern schools special class teachers, and 25 per cent of ordinary junior school teachers. Corresponding chi-square values show significant differences respectively at 0·05, 0·01 and 0·001 per cent levels. But just over half of ordinary secondary modern school teachers said their special courses lasted one year or more.

Teacher training apart, seven out of 20 teachers of ordinary classes in secondary schools had university degrees compared to none of the 20 teachers from special schools. Indeed, at least 20 per cent of teachers in all the other three types of classes were graduates.

As a possible measure of teachers' personal awareness of their own ability, qualification and desire to teach ESN pupils, it is significant that only 15 per cent of teachers in charge of special classes of secondary schools applied for their posts, compared to 80 per cent of teachers in special schools. The difference is significant at the 0·01 per cent level. Seventy-five per cent of teachers in charge of special classes of junior schools also said they were requested to take their classes. But whereas a special class allowance is given to all special school teachers, only 35 per cent of teachers in special classes of junior schools are so rewarded. The difference is significant at the 0·05 per cent level.

Contact with parents

The second part of the survey attempted to obtain some evidence of the degree of contact between teachers and their pupils' parents.

(see Table 2). When asked to state how many children's parents (father or mother or both) they saw during the school year 1966-67, 90 per cent of special school teachers said they saw parents of at least a third of the children in their classes. This was significantly more than the 60 per cent of junior school special class teachers, 35 per cent of secondary school special class teachers, or 30 per cent of teachers of ordinary classes in secondary schools who said they also did. But 80 per cent of ordinary classes' teachers in junior schools also said they saw the parents of at least a third of their classes.

Ninety per cent of the teachers from special schools said they discussed their pupils' future occupation with the parents. This differs significantly from the 40 per cent of special class teachers and 30 per cent of ordinary class teachers from the secondary schools who said they also did. In addition, special schools' teachers said they saw most of the parents at least once a term, invited at least a third of the children's parents in one year, and arranged to visit the homes of at least a third of their pupils. A considerably smaller proportion of teachers of any of the four other types of classes said they had similar experience.

Teachers' Attitudes

Special school teachers believed in a democratic approach, free expression by children, diffused roles, and assuming the roles of parents more than teachers in charge of the four other types of classes. When asked how they would describe their relationship with their pupils 80 per cent of them said 'good'. The percentage of the other four types of teachers giving a similar response varied from 50 per cent to 70 per cent.

Satisfaction

The last section of the questionnaire tried to obtain responses from the teachers which might indicate the degree of satisfaction or frustration

Table 1: Percentage of teachers indicating agreement with attitude statements

Statements	Special Schools Classes	Junior Schools Special Classes	Sec. Schools Special Classes	Schools Ord. Classes	Schools Ord. Classes
(a) A teacher should show interest in children's domestic problems	100	100	100	100	100
(b) A teacher's duty includes showing concern about children's emotional state	100	100	100	100	100
(c) A teacher should be interested to know how the children feel towards him or her	75	85	60	90	50
(d) A teacher should always tell children what to do	10	25	15	20	10
(e) A teacher should consult children about classroom activities	85	70	60	50	45†
(f) Children will get on, on their own if left to themselves	10	20	30	25	40
(g) If you want to get anything done you must be strict	10	30	65†	20	55†
(h) Children should be permitted to express themselves freely	80	70	65	75	65
(i) When children are in the classroom, the class teacher should assume the role of a parent	70	60	50	45	35†
(j) A teacher's duty includes:					
(i) Training children in good behaviour	100	85	90	80	45†
(ii) Training children in personal hygiene	100	80	45†	75	40†
(iii) Training in leisure skills	85	65	60	80	75
(v) Social training	100	85	80	90	50

†Comparison with special school teachers: χ^2 reached level of significance at five per cent

Table 2: Percentage of teachers indicating satisfaction with posts

STATEMENTS ABOUT JOB SATISFACTION	SPECIAL SCHOOLS CLASSES	JUNIOR SCHOOLS SPECIAL CLASSES	SEC. SCHOOLS SPECIAL CLASSES	JUNIOR SCHOOLS ORD. CLASSES	SEC. SCHOOLS ORD. CLASSES
Made positive statements about teaching	80	60	55	75	70
Expressed interest in teaching	75	30†	40	50	40
Source of satisfaction—pupils' achievement	80	75	70	90	80
Source of frustration—pupils' failure	55	90†	80	75	80
Lack of professional status felt	45	10	20	25	20
Would teach same class again	85	30†	35†	70	60
Would teach in same school	90	55†	65	80	50†
Satisfied with size of class	90	60	45†	35†	45†

†Comparison with special school teachers: χ^2 reached level of significance at five per cent.

encountered in teaching their respective classes. Thus when asked why they chose to teach, the majority of teachers gave reasons which are relevant to the teaching profession; statements such as 'I love teaching', 'it is such a rewarding job to pass on knowledge', 'I can still learn by teaching' were made. Again the special school teachers were in the majority here. Statements most frequently made by them were 'these children need us', 'they are very friendly', 'it's good teaching them'. When asked why they came to teach in their current schools, interest was mentioned more than convenience only by the special school teachers (75 per cent). Of others, 50 per cent to 70 per cent emphasized personal convenience. But the major satisfaction mentioned by most of the five groups of teachers was the joy of seeing pupils achieve, no matter how little. The remainder mainly emphasized professional status and incentives, including graded post awards.

Similarly, the major frustration recalled by the majority of teachers was about pupils' failure, morally, socially or academically. The largest proportion of teachers emphasizing frustration about professional status came from the special school teachers who complained of lack of appreciation, lack of understanding and stigmatization from and by the public at large because of their being teachers in special schools for ESN pupils. Yet 85 per cent of the same teachers would not have minded teaching their current classes again in the following year, an enthusiasm shared by 70 per cent of junior and 60 per cent of secondary modern (ordinary classes) teachers. Over two-thirds of teachers of special classes of junior and secondary modern schools were not keen. Similarly at least half of the teachers in charge of each type of class would like to teach in the same school in the following year. For the special school teachers the proportion was 90 per cent. A relevant factor here may be size of class. Whereas 90 per cent of special school teachers were satisfied with the sizes of their classes, many of the other teachers were not.

In summary, it may be said that in this study, teachers in special schools were better trained for the task in hand, more interested in their pupils, made more contacts with parents, tended to be more concerned about their job, disliked their public image, but were generally more satisfied than were other teachers who participated in the study.

Discussion

Although there were small numbers of male and female teachers from each type of class in the sample, the responses of both sexes have been analysed together and combined results presented because of the remarkable similarity in these responses. It will appear that different schools attract male and female teachers of similar attitudes, and similarly influence their attitudes after they have taught in their particular schools for some time. Teachers in special schools show attitudes which lead one to conclude that they have broadened the scope of their roles to include functions not very unlike those of parents and social workers. Their interests and satisfaction in their jobs appear to have enabled them to balance teaching and social work in a way that teachers in ordinary schools, be they in charge of ESN or non-ESN children, are not able to achieve.

Perhaps an important element in this attitude of the teachers in special schools is their specialist training. They also seem to have benefited by being in constant contact with other teachers with similar attitudes, an opportunity not open to the teachers of ESN pupils in ordinary schools. Theories and studies of social interaction show that the teacher-pupil relationship is complex and reciprocal (White and Lippitt, 1960; Withall and Lewis, 1963). It is probably the case that the democratic approach and concern for pupils shown by teachers influences pupils to a large extent and this may be very important for the ESN pupil. Another factor that can be deduced from the result is the length of experience of teachers in special schools. This may be related to an attitude of warmth and permissiveness (Heil and Washburne, 1962; Hoyt and Cook, 1960). Such an attitude as has been mentioned above may result from an interaction with other colleagues with similar attitudes. It may also result from interaction with pupils; but not merely from the passage of time. It would appear from this investigation that if a democratic approach, warmth and permissive attitude towards pupils, emotional involvement and concern for them are desirable in a teacher for the ESN pupils, then specialist training and experience in special schools for the ESN may be two of the most important methods to encourage in preparing these teachers.

References

Evans, K. M. (1959). 'The teacher-pupil relationship', *Educ. Res.*, **II**, 1, 3-8.

Heil, L. M. and Washburne, C. (1962). 'Brooklyn college research in teacher effectiveness', *J. Teacher Educ.*, **55**, 347-351.

Hoyt, C. J. and Cook, W. W. (1960). 'The stability of MTAI scores during two to seven years of teaching', *J. Teacher Educ.*, **11**, 487-491.

Mays, J. B. (1962). *Education and the urban child.* Liverpool: Liverpool University Press.

White, R. K. and Lippitt, R. (1960). *Autocracy and Democracy: An Experimental Enquiry*. New York: Harper.

Wilson, B. R. (1962). 'The teacher's role—a sociological analysis', *Brit. J. Sociol.*, **XIII**, 1, 15-32.

Wilson, J. (1965). 'Two types of teaching'. In: Archambaul, R. D. ed. *Philosophical Analysis and Education.* London: Routledge & Kegan Paul.

Withall, J. and Lewis, W. W. (1963). 'Social interaction in the classroom'. In: Gage, N. L. ed. *Handbook of Research on Teaching*. Chicago: Rand McNally.

PROGRAMMED LEARNING IN PAIRS

JAMES HARTLEY *Department of Psychology, University of Keele*
FRANK W. HOGARTH *Wolstanton County Grammar School, Newcastle-under-Lyme*

Over 80 pupils in four unstreamed classes in a boys' grammar school were divided into mixed-ability and like-ability pairs in order to work together through a programmed text. No significant difference was found between the performance of individuals in the mixed-ability pairs and that of similar individuals in the like-ability pairs. High-ability pupils in the mixed-ability pairs expressed less favourable attitudes to the situation.

It has often been suggested that learning in groups is more efficient than learning alone, and much work has been done to investigate this proposition in the context of programmed learning (Hartley, 1968). The experiment to be reported illustrates one aspect of this research which, for various reasons, has attracted a number of investigators. Programmed learning in pairs is seen as valuable, not only for its obvious economic implications, but also because it introduces social interaction into programmed learning. It is suggested that discussion, argument and co-operation make programmed learning in pairs more profitable than programmed learning alone, and that this is reflected in higher post- and re-test scores.

Previous research in this area has been reviewed elsewhere (Hartley, 1970). The main conclusions of that review were that the evidence available was too meagre to support the popular contentions that post-test or retention scores were better for paired than for individual learners, but that it did indicate that programmed learning in pairs was as effective as individual programmed learning.

If it is accepted that programmed learning in pairs is a viable technique, the next question becomes whether some ways of pairing lead to better results. Some investigators have used personality measures as a basis for comparison (e.g. Dick and Seguin, 1963; Amaria and Leith, 1969; Sutter and Reid, 1969); others have paired at random (e.g. Dick, 1963; Austwick, 1965), but most have used intelligence and/or pre-test scores. These latter studies have aimed to discover whether pairing a low-ability pupil with a high-ability pupil significantly helps the poorer one without hindering the better one. The conclusions reached by Hartley in this respect were that studies which tended to favour mixed-ability pairing used pupils with a wide ability range, and utilized 'activity' or 'discovery' programs (e.g. Tucker and Hartley, 1967; Amaria *et al.*, 1969), whereas studies which tended to find no advantage for mixed-ability pairing used pupils with a narrower ability range, and utilized more 'straightforward' conventional programmes (e.g. Austwick, 1965; Sawiris, 1966; Hartley and Cook, 1967).

Hartley and Holt (1968) tried to clarify this issue further by using a 'discovery' programme with secondary pupils with a narrow ability range, but they failed to find any significant difference in favour of mixed ability pairing. The experiment to be reported below becomes important in this context because by using four unstreamed classes, the problems of small-scale research were reduced, and the pairs could be formed from a wide ability range. The pupils were single sexed, and thus the problems of sex differences were avoided, and the experiment utilized an 'activity' programme specially written for pairs at the secondary level. No research to date on programmed learning in pairs can claim more than two of these advantages.

The study

In the studies of pairing methods three groups of pairs are required: two sets of homogeneous pairs (high-high: low-low) and one set of heterogeneous pairs (high-low). Taking each pupil as an individual, this design allows both for a comparison between high-ability pupils (H) in the high: low pairing (HL) with high-ability pupils working together (HH), and for a comparison between low-ability (L) in HL pairs with low-ability pupils working together (LL). The major comparisons made are thus H *vs.* HH and L *vs.* LL. Thus not only does this design allow us to assess the influence of high on low in an HL pair, but also the effect of low on high.

Four unstreamed second-year classes from a boys' grammar school were used (age range 12·1–13·11 years) and they were divided as follows. In Forms 1 and 3, like-ability pairs were formed by ranking pupils on their previous end-of-term total examination marks, and pairing pupil 1 with 2, 3 with 4, and so on. In Forms 2 and 4, pupils were similarly ranked, but mixed-ability pairs were formed by pairing pupil 1 with 12, 2 with 13, etc. (the approximate number per form being 22). Combining the forms produced the experimental groups as shown in the first part of Table 1. The scores of members of these groups on pre-knowledge of chemistry (end-of-term mark) and on 'intelligence'—a composite score derived from four 11-plus measures—were also compared. Pupils who, for example, ranked high on one measurement but low on another were discarded from the analysis. The results of all these measures are as shown in Table 1, and it is clear from inspection that the experimental sub-groups were well matched, and were clearly differentiated in terms of 'high' and 'low' ability.

A short pre-test was administered before the experiment began to ensure that all pupils had the requisite knowledge, and remedial treatment was given to pupils who required it. Because the material to be taught was new, no pre-test was given to measure knowledge of the subject matter.

The programme used in this experiment was Hogarth's *The Gram Atom* (unpublished), a linear programme of some 120 frames, divided into three parts and providing approximately two and a half hours' instruction. The subject matter of the programme was concerned with demonstrating that if the atomic weights of the elements are expressed in grams then these weights all contain the same number of atoms. Pupils, when they have completed the programme, should be able to compare numbers of atoms in any given weights of different elements: in brief, the programme concerns itself with a topic that pupils often have difficulty in grasping. The programme was unusual in that it was especially written for paired work. In Part One, for example, each pupil had his own (different) textbook, with separate instructions for practical work, and each in turn had to check the work of his partner: at the end of the programme pupils were required to set each other problems. The programme was described above as an 'activity' programme, for it involved the pupils in activity and co-operative work.

The test used to measure the amount learned from the programme consisted of 14 questions, and was marked out of 25. To anticipate the results section, the test–re-test correlations over a three or four weeks period were worked for the four forms and were 0·86, 0·72, 0·60 and 0·78 respectively, giving an average (by the r to z method) of 0·75.

The allocation of each pupil to a particular partner had been made previously for work with another programme, so, in effect, the pupils were familiar with working with their partners, and also with programmed instruction. Pupils worked for two 40 minute periods per week, at their own rate, and the different forms were supervised by different teachers. The post-test was given immediately upon completion of the programme, and the same test was administered three or four weeks later in order to assess retention. A brief attitude questionnaire was administered orally after the post-test. The pupils were not aware that they were taking part in an experiment.

Results

The results obtained are shown in the second part of Table 1, and largely speak for themselves: there were no significant differences between H and HH pupils and L and LL pupils, both on immediate and long-term testing. There was,

Table 1: The experimental groups, the matching data and the results

Forms	*Ability*		MATCHING DATA *Total Exam. Mark*	*Chemistry Exam.*	*'Intelligence' Score*	RESULTS *Post-Test/25*	*Retention Test/25*
1 & 3	High : High	Mean	667·3	62·4	486·9	18·3	17·6
		SD	91·0	11·6	33·8	4·6	6·2
		N	22	22	21	22	21
2 & 4	High (with L)	Mean	663·7	59·6	478·4	16·5	17·0
		SD	83·3	10·3	30·2	4·3	3·8
		N	21	21	19	17	16
2 & 4	Low (with H)	Mean	498·3	40·9	453·8	11·5	10·4
		SD	36·5	9·7	19·3	4·4	5·1
		N	20	20	19	17	16
1 & 3	Low : Low	Mean	489·8	43·4	454·0	11·2	10·1
		SD	42·1	10·4	15·4	4·1	3·8
		N	20	20	18	16	15

however, a significant difference between 'high' and 'low' pupils taken overall ($p<0\cdot01$).

Where possible, a more accurate measure was made of the time taken to complete the programme other than that of the total number of periods. The HH group worked fastest (mean time 130 minutes, $N=11$), HL groups came next (mean time 141 minutes, $N=17$), and LL groups were slowest (mean time 150 minutes, $N=7$). These differences, however, were not statistically significant.

Discussion

The results obtained in this experiment tie in with previous research in that, with the exception of studies by Amaria *et al.* (1969), the formation of mixed-ability pairs has not been demonstrated to provide assistance for low-ability pupils at secondary level. Because this experiment took place in circumstances which previous research had suggested were favourable to positive results, it is important to consider them further.

Large Numbers

The present experiment, like most on pairing, lost data through absenteeism, but the numbers remaining were still greater than those used in any other pairing study except those reported by Amaria *et al.* (and they are not precise on this point). It is important to note here (since these investigators provided the exceptional results) that Amaria *et al.* enlarged their sample sizes by drawing on, and mixing pupils from different forms. This method may be of value for research, but it is not practical for most school systems. Indeed, if mixed-ability pairing is only profitable when the partners are relative strangers, then this does not seem to be a very helpful finding.

The present experiment had the advantage of being administratively convenient, but there was the inevitable weakness in that, by combining different forms, differences between forms were disguised. (In fact, the performance of Forms 1, 2 and 3 was very similar: Form 4 did significantly worse than Form 1 ($p<0\cdot05$), and the source of this difference was mainly attributable to low-ability pupils.)

Ability Range

It is important, when comparing experiments, to consider the ability range of the pupils forming the mixed and like-ability pairs: it is clear that pairs which are labelled 'heterogeneous' in one study might be 'homogeneous' in another (see Hartley and Cook, 1967). This problem is more acute at secondary level where classes are often streamed. Amaria *et al.* (1969) extended the ability range in their studies by mixing classes, and it seems clear from their report (although exact details are not reported) that the pupils used in their study had a wider ability range than the ones used in the present one. In this experiment it was fortunate that unstreamed classes could be used, but since the investigation took place in a grammar school, the range was still restricted to the top 20 per cent of the population (in terms of IQ). It is not possible, however, to conclude that the positive results of Amaria *et al* can simply be explained by wider differences in ability between the mixed-ability pairs: indeed, as will be observed below, it appeared that in the present experiment H pupils in HL pairs did not like the situation (relative to HH) and presumably, if this difference in ability had been wider, then the results might have been even more different from those reported by Amaria *et al.*

Single Sex

By using all boys this experiment ruled out the possibility of interference from sex differences. These undoubtedly do occur, and it has been suggested elsewhere that girls are more conscientious than boys when using programmed materials —although this does not necessarily affect performance (Hartley, 1966; Noble, 1969). Interestingly enough, Amaria *et al.* found that girls profited more from mixed-ability pairing than did boys, and thus it might be worthwhile to replicate this study with girls.

The Programme

With the exception of Tucker and Hartley (1967) no studies on pairing have used a programme that fully met its objectives, and undoubtedly one weakness in this particular experiment lay in the quality of the programme used. It is clear from Table 1 that the programme was not completely successful, especially with poorer ability pupils. Furthermore, the attitude questionnaire indicated that the majority of the pupils found the programme boring in parts—a not uncommon complaint (Noble and Gray, 1968). It must be noted here that these pupils had worked through a previous programme—which had been far from successful—and they objected to the repeated testing involved in experiments of this kind. Programmed learning was becoming associated for many of them with testing, boring programmes, and uninteresting practicals—a situation far removed from the remainder of their Nuffield Chemistry Course. Nevertheless, the questionnaire results did indicate that some of the objectives of the programme were met: pupils liked working in pairs, and they carried out most of the practical work. In making their suggestions for improving the programme, 24 pupils suggested increasing this—a difficult task in view of the nature of the subject matter.

Pupil Attitudes

The majority of pupils liked working in pairs, but there was a suggestion that H pupils in the HL group were disgruntled by the situation. Further evidence to support this position was provided when the expressions of preferences for partners were examined (see Table 2). Here it was apparent that most groups chose high-ability pupils, and moreover, that their choice of pupils (in terms of ability) was not greatly different from that allocated to them by the experimenters—with the exception of H pupils in the HL group. The choices of these pupils were the most incongruent and this difference was significant ($\chi^2=14{\cdot}2$; $p<0{\cdot}01$). It is interesting to speculate why most pupils chose 'high-ability' pupils, and at least three reasons suggest themselves: (i) they chose a person who was popular (some choices were named several times); (ii) they chose someone who was good at chemistry because he would help them; or relatedly (iii) they chose someone who was good at chemistry because they thought they could get by with less work themselves. Certainly, there was a strong preference expressed for choosing their own partners, and refining the questionnaire in a future experiment would provide some answers to these speculations.

Table 2: The expressed choice of partner

Groups	'High' Choice	'Low' Choice	No Preference
High : High (N=22)	18	2	2
High (with Low) (N=21)	14	6	1
Low (with High) (N=20)	14	4	2
Low : Low (N=16)	5	8	3

Research on pairing where pupils chose their own partners has been carried out by Noble (1967), but he was not concerned with comparisons between different pairing methods, or the reasons for choices.

Conclusion

Previous research suggested that the conditions of this experiment were favourable for low-ability members of mixed-ability pairs, but in fact the results clearly supported the null hypothesis: the 'low' members of mixed-ability pairs did not profit from being paired with the 'high' members; the 'high' members did not like the situation. These results were achieved with fairly substantial numbers in each group (for programmed learning), with single sex pupils of a fairly wide ability range, and with a programme especially written for pairs involving them in practical and co-operative work.

Although the results are in accord with most previous work at secondary level, it would perhaps be premature to conclude that mixed-ability pairing is not a useful method of pairing: Amaria *et al.* have provided data to the contrary, the previous research has many limitations, and the results of this experiment must remain specific to the pupils involved, the social situation in the school, and the particular programme used.

One weakness in this particular study was that the programme used did not fully realize its objectives, and this weakness throws light on a problem peculiar to work on social aspects of programmed learning. If a programme 'works' (and all pupils in the target population learn), then does it work in spite of social factors, or with their aid? Certainly there is evidence that administrative, social and personality factors affect the efficiency of programmed learning, and there must be few programmes which are immune to these pressures. Programmed learning in pairs provides a useful technique for examining this dilemma.

References

Amaria, R. P., Biran, L. A. and Leith, G. O. M. (1969). 'Individual versus co-operative learning. I. Influence of intelligence and sex', *Educ. Res.*, **11**, 2, 95-103.

Amaria, R. P. and Leith, G. O. M. (1969). 'Individual versus co-operative learning. II. Influence of personality', *Educ. Res.*, **11**, 3, 193-99.

Austwick, K. (1965). Research report, *New Educ.*, **1**, 10, 25-26.

Dick, W. (1963). 'Retention as a function of paired and individual use of programmed instruction', *J. Programmed Instruction*, **II**, 3, 17-23.

Dick, W. and Seguin, E. L. (1963). 'Effects of personality pairing on the performance of students in a programmed course in English Grammar'. In Carpenter, C. R. and Greenhill, P. L., eds. *Comparative Research on Methods and Media for Presenting Programmed Courses in Mathematics and English*. Pennsylvania: Pennsylvania State University.

Hartley, J. (1966). 'Social factors in programmed instruction: a review', *Programmed Learning*, **3**, 1, 3-16.

Hartley, J. (1968). 'Some factors affecting student performance in programmed learning', *Programmed Learning and Educ. Technol.*, **5**, 3, 206-18.

Hartley, J. 'Social psychology and programmed learning' (in preparation).

Hartley, J. and Cook, A. (1967). 'Programmed learning in pairs: the results of miniature experiments', *Programmed Learning & Educ. Technol.*, **4**, 3, 168-78.

Hartley, J. and Holt, J. (1968). Social aspects of programmed learning. Paper delivered to Danish Conference on Programmed Learning: Copenhagen.

Noble, G. (1967). 'A study of the differences between paired and individual learning from a branching programme', *Programmed Learning & Educ. Technol.*, **4**, 2, 108-12.

Noble, G. (1969). 'Individual differences and intrinsic programmed instruction', *Programmed Learning and Educ. Technol.*, **6**, 1, 40-57.

Noble, G. and Gray, K. (1968). 'The impact of programmed instruction: a longitudinal study', *Programmed Learning and Educ. Technol.*, **5**, 4, 271-82.

Sawiris, M. Y. (1966). 'An experimental study of individual and group learning using a linear geometry programme', *Programmed Learning*, **3**, 3, 146-53.

Sutter, E. G. and Reid, J. B. (1969). 'Learner variables and interpersonal conditions in computer-assisted instruction', *J. Educ. Psychol.*, **60**, 3, 153-57.

Tucker, G. L. and Hartley, J. (1967). 'Experiments with programmed instruction in primary schools', *Visual Educ.* (December), 17-23.

TECHNICAL STUDIES RATING SCHEME [1]

R. SUMNER *Department of Education, University of Manchester*

THE scheme offers operational guides based upon identifiable behaviours in a number of technical subjects classified, for rating purposes, with cognitive, affective and motor-manipulative taxonomies. Two dimensions are postulated for each taxonomy, (*i*) complexity and (*ii*) extensiveness. The stages are briefly illustrated by reference to skilled performance in a number of crafts. Instructions for using the rating schedule to derive three profiles relevant to attainment are provided. Interpretations of profiles are suggested, including a tentative method for aggregating numerical scores for comparison with established examination grades at 'O' level and CSE. The results from a trial run with a simple version of the scheme are reported and discussed.

The diversity of coursework in technical subjects makes it very difficult to assess in a standard way the capabilities of pupils in different schools, with different local circumstances and conditions of staffing, equipment and organization. Although some examinations for external bodies have become more flexible, permitting schools to group together when submitting syllabuses or allowing separate schools to devise their own examinations, and individual coursework has been given more prominence, teachers may still feel that certain aspects of a pupil's performance are neglected. The emotional commitment and regard for standards which many teachers believe is engendered by practical skilled experience may be particularly neglected.

Many teachers are also convinced that the best person to judge a pupil's performance is his own teacher. It is arguable whether this proposition can be substantiated, but if accepted there must be stringent limiting conditions, such as continuous contact between teacher and taught for a minimum period before the assessment is given; and equally important, acceptance by teachers of a suitable specification for an equable and broadly applicable evaluation procedure.

The rating scheme put forward here is very demanding of teachers, and also challenges their capacity to assimilate and consistently apply a complex series of concepts. Only the briefest guidance possible has been given when defining each stage of the scheme. Teachers of different subjects should have little difficulty in supplying many more appropriate examples to supplement those given. The task, then, is to gauge the equivalence of performance in a school subject in respect of identifiable behaviour, and to estimate the extent to which the pupil has mastered a classified area of behaviour.

The rating scheme

Three aspects of proficiency are considered separately: intellectual ability, manipulative skill and emotional commitment. In most pupils, each of these is related to the others in some degree while the subject activity is being carried on. The three aspects are separated only for the sake of precision in carrying out rating. The school subjects that can be assessed by means of ratings may not incorporate all the levels given in the scheme when taught up to the end of the fourth year. Hence teachers should not feel obliged to use all the parts of the three scales described later.

---

[1] This scheme was devised for a project at Manchester University directed by the late Professor F. W. Warburton.

Some of the school subjects to which it is thought the scheme can be usefully applied are: Metalwork, Engineering, Workshop Theory and Practice, Light Engineering, Technical Drawing, Geometrical and Engineering Drawing, Surveying, Woodwork, Light Crafts, Pottery, Building Crafts, Domestic Science, Needlework, Dressmaking, Cookery, and Typewriting.

Intellectual Ability

This is characterized by increasing abstraction.

Level 1. Recall and recognition: the ability to recall and recognize facts, terms, conventions, classifications, methods and theories. *Examples:* Composition of alloys, ingredients of recipes, properties of materials, order of processes (e.g. planning routine, mixing routine), dietary theory, crystalline structure of metals which underlies heat treatment of steels, composition of ingredients.

Level 2. Comprehension: the interpretation of information; translation from one level of abstraction to another; understanding the effect of new conditions on given data and conditions. *Examples:* reading a drawing, understanding the specification for a piece of work (e.g. parts, lists, materials), visualization of appearance of product, appreciating the effect of changes in a design, (e.g. if material, colour, or texture were altered).

Level 3. Application: the use of abstractions (theories, principles, methods, ideas) in carrying out a job. *Examples:* axial plotting to set out a spiral carving, surface development adaptations for setting out complex shapes, basing a menu on dietary principles, locating inter-facing in a garment, making up glazes for intended colour and texture of effects, assembling circuit components to give a required output (frequency, amplification, etc.).

Level 4. Analysis: distinguishing elements and components, identifying relationships between functional entities, discerning general principles and how they are organized into systems. *Examples:* ability to select major elements in design (e.g. juxtaposition of form, colour, texture, surface, finish, supporting elements e.g. matt versus glossy surface), consideration of design intention and means of production, working out the operation of complex linkages (e.g. sewing machine stitch mechanism, car gear-box—ability to strip, inspect, assemble and adjust).

Level 5. Selection: the selection of appropriate techniques, location of central issue, arrangement of information into orders of importance, classes of events and objects, rejection of irrelevant data, critical appraisal. *Examples:* choice of machine tools, cutters, speeds, feeds, holding devices etc. to achieve a particular cut; identification of first second, third etc., processes before starting a job; diagnosis of faults in machinery and in products; consideration of material properties (e.g. proportion of 'grog' c.f. firing temperature to give a pot the texture required); choice of criteria (e.g. cost of material, time in production, how to assess results and selection of important and less important means of judging criteria).

Level 6. Synthesis: the production of an individual solution, planning a sequence of operations, originating a set of abstract relations, bringing related ideas together in order to give rise to an integrated concept. *Examples:* skill in designing (e.g. using sketches, outline drawings, estimates of quantities, costs, etc., specification of finish), thinking up fresh ideas and requirements and means of meeting them, investigation of a problem *leading to an integrated set of proposals for solving it* (e.g. most appropriate food for aged, how to prepare, and how to distribute it).

Level 7. Evaluation: Judgment on internal evidence, and on external criteria, i.e. comparison of means/ends and ends/ends. *Examples:* strength and weakness in a structure; strength in a structure compared with an external factor that affects it; comparison with other solutions to problems; e.g. one dress design versus another; comparison of criteria and judgment of degree of relevance, e.g. a product may be good but too expensive to be acceptable.

Manipulative Skill

This is characterized by increasing control.

Level 1. Simple: gross body management, e.g. handling materials, sorting timber, unpacking deliveries, keeping laboratory, studio, or workshop tidy, wedging clay, etc.

Level 2. Elementary control: some control needed (such skill would be usual in every-day life), e.g. beating, stirring, scooping, turning handles, rolling out, poking. Clumsy performance would result in mess.

Level 3. Moderate control: specific to a craft or tool, e.g. use of screwdriver, drilling through holes, chopping food, tacking stitch, fixing work in a holding device: for such a skill one demonstration plus practice is adequate for its development.

Level 4. Good control: careful and repeated practice needed for competence, e.g. sewing to a mark, throwing a pot, planishing, embroidery stitching, piping icing, filing, hand-turning in wood, handling machine tool controls in a co-ordinated manner, i.e. both hands in use simultaneously, adapting to the material or tool, e.g. change of malleability, effort in paring curves as grain changes.

Level 5. Fine control: requiring consistent discrimination, co-ordination, adaption, delicacy of touch, e.g. engraving, faggot stitching, scraping flat surface, use of needle files, saw sharpening, spindle mouldings, quilting, crocheting, handling delicate components.

Emotional Commitment

Level 1. Awareness: noticing colour, form, texture, special type of work. *Examples:* has knowledge of the subject and events connected with it; exhibitions of work, e.g. wrought iron gates.

Level 2. Responding: willing to be active, shows satisfaction in the activity, satisfaction from working in the material. *Examples:* works in own time, reads technical or craft journal voluntarily, finds pleasure in using the tools or reading about the subject, gives free time to look at examples of craftsmanship.

Level 3. Valuing: accepts the importance of the subject and gives it preference over other activities. *Examples:* discusses the work with friends and staff, brings in press cutting and finds references, knows personal lives of teachers in the field, develops priorities within the subject, e.g. carving preferred to cabinet work, savouries preferred to sweets, stoneware preferred to earthenware etc., tries to persuade others to take interest, or join the society, takes office, recruits new members.

Level 4. Organization into value system: relates to other values and arranges an order of priorities. *Example:* develops the idea of integrity of performance from the notion that good work will be good throughout—not just on the surface where it is visible. Sees that the quality of life (character, aesthetics and the environment) is related to the quality of performance in the subject.

Level 5. Characterization: rather more than finding satisfaction in the pursuit of the subject. Implies that permanent values, interests and attitudes are formed, and that these become central to the person's life. *Examples:* a 'craftsman' will always wish to do a workmanlike job in every sphere of life, regard 'botching up' as immoral and regards the activity as a means of improving the quality of life. (It is doubtful whether a schoolboy will develop to this level—many craftsmen don't!)

Use of the rating scales

Each aspect of proficiency involves the notions of depth and extensiveness. The increasing levels of attainment described so far embody depth. Extensiveness relates only to any given level and requires two things of the rater: a clear knowledge of how extensive a level *could be* in a general population of pupils of *15-16 years*, and, for each pupil, an approximate estimate of proficiency within each level given as a proportion of the field of activity encompassed by a level.

Instructions

1. Rate each aspect independently.

2. Place outstanding poor or good pupils at the extremes of the scales.

3. Assess the pupil for performance when working independently, i.e. without supervision, coaching or any other form of guidance other than that normally accessible in manuals, tests, drawings, charts, etc.

4. Enter the number 1, 2, 3, 4, or 5 opposite each 'level' in the rating chart to indicate the proportion of a level mastered by the pupil.

5. (*a*) To get the simple pooled totals, bring the column numbers from the body of the table to its foot then add to the *left*. (*b*) To get the weighted totals, multiply each number indicating 'proportion' by the level number; enter the product in the separate column to the right of the rating chart; sum to the foot of this column.

6. Carry the 'aspect' totals to the respective overall score columns; sum the totals to the foot of each column.

Interpretation

For individual pupils the rating charts are thought to be most useful when used descriptively as profiles relating to three important aspects of performance in a skilled practical subject. Owing to the nature of the taxonomies, for most pupils the proportions of each level mastered will fall as the level rises. The pooled totals only record the number of proportions observed to the credit of the pupil. The weighted totals make use of the assumption that higher levels of mastery are more important than lower levels; the use of numbers assigned to levels as coefficients is entirely arbitrary—it only has the virtue of reflecting higher level performances in the total score; hence it will differentiate pupils more effectively.

A teacher who wishes to record the progress of a group of pupils in detail is recommended to use the profiles for each individual. A summary, suitable for a class list, is given by the three pooled totals, from which a colleague could rapidly assess the strengths and weaknesses of each child. Where a single mark is required the overall pooled total or the overall weighted total can be used; in the latter case, it must be remembered that, in general, the weighted total gives a more balanced view of a pupil's achievement in the middle range of scores, i.e. from about 90-180; in the upper reaches, i.e. above about 180, the score is weighted greatly in favour of the higher levels of performance. A tentative proposal for a grading system which fits in with the present GCE and CSE awards can be adopted; this is done by dividing the *pooled* total range into divisions (Table 1).

It can be seen from this example that the award of a high score indicating mastery of a large proportion of a level of performance can only be made to the most outstanding pupils. (This proposal is put forward tentatively in the belief that schools will find it viable; it should be checked against the grades awarded externally for a period so that a true comparison with the results of established examination procedures can be made.)

Table 1

85 – 78	Grade 1 'O' level GCE	
77 – 70	2 'O' level GCE	
69 – 62	3 'O' level GCE	
61 – 54	4 'O' level GCE	
53 – 46	5 'O' level GCE	
45 – 38	6 'O' level GCE	and Grade 1 CSE
37 – 30		2 CSE
29 – 22		3 CSE
21 – 14		4 CSE
13 – 6		5 CSE
5 – 0		ungraded

The trial assessments

A simpler version of the scheme described above was tried out in two comprehensive schools. Here, the teachers used a rating scheme which only specified the levels of attainment in each of the three aspects of skilled performance. However, this scheme was found to be too restrictive as it led to difficulties when assessing the extent to which individual pupils had adequately covered a given level of performance. Teachers were dissatisfied, say, with giving Pupil A a tick for ability to recall and recognize factual information when Pupil B, who was in command of many more facts, theories, etc., was also given a tick for the same ability. Allocating a mark to show the extent to which a pupil has mastered behaviour prescribed in a certain level should help to overcome this disadvantage.

The results given in Table 2 show how the ratings were allocated by eight teachers, five of boys' subjects and three of girls' subjects.

The numbers of pupils and teachers involved in this exercise were so small that it is only permissible to seek out the most general trends. It can be seen, however, that the higher levels of cognitive performance were observed in pupils relatively infrequently, that the majority of pupils were thought to be quite highly skilled manually, and that the main emotional commitment was assessed as at the level of active response. Girls

Table 2: Technical studies rating scheme: summary of ratings awarded

INTELLECTUAL ABILITY				MANIPULATIVE SKILL				EMOTIONAL COMMITMENT			
Level	*Boys*	*Girls*	*Total*	*Level*	*Boys*	*Girls*	*Total*	*Level*	*Boys*	*Girls*	*Total*
1	32	14	46	1	13	5	18	1	26	17	43
2	27	10	37	2	25	4	29	2	51	14	65
3	31	11	42	3	50	11	61	3	27	5	32
4	11	1	12	4	20	16	36	4	3	0	3
5	6	0	6	5	2	0	2	5	3	0	3
6	1	0	1	—	—	—	—	—	—	—	—
7	2	0	2	—	—	—	—	—	—	—	—

were rated at having finer skills but developing less feelings for the subject.

The teachers who co-operated in this trial demonstrated a willingness to consider the merits of a new scheme of assessment, even though their participation entailed quite a lot of 'private study' at the end of a school year. They also showed that technical subject teachers can make use of new tools, but as everyone in this field of education knows, new tools require understanding and practice before proving their utility. This rating scheme, when it was introduced to teachers, gave rise to much thoughtful discussion on the nature of the subjects taught. Several teachers observed that the taxonomies, even though they were presented in the briefest outline, enabled them to develop greater insight into the nature of the problems involved in teaching their subjects.

References

BLOOM, B. S. *et al.* (1956). *Taxonomy of Educational Objectives, Handbook 1, Cognitive Domain.* London: Longmans.

KRATHWOHL, D. R., BLOOM, B. S. and MASIA, B. B. (1964). *Taxonomy of Educational Objectives, Handbook 2, Affective Domain.* London: Longmans.

SUMNER, R. (1968). 'The objectives of craft education', *Vocational Aspect*, **XX**, 46, 137-49.

Technical Studies Rating

NAME ....

SCHOOL ....

SUBJECT ....

TEACHER'S INITIALS ....

Instructions: Write the number 1, 2, 3, 4 or 5 in the appropriate box to indicate the proportion of a level of performance it is considered that a pupil has mastered.

Intellectual Ability

		Proportions					
Recall and Recognition	1						
Comprehension	2						
Application	3						
Analysis	4						
Selection	5						
Synthesis	6						
Evaluation	7						
Pooled Total							

Manipulative Skill

		Proportions					
Simple	1						
Elementary	2						
Moderate	3						
Well-controlled	4						
Fine	5						
Pooled Total							

Emotional commitment

		Proportions					
Awareness	1						
Responding	2						
Valuing	3						
Value System	4						
Characterization	5						
Pooled Total							

	Pooled Totals	Weighted Totals
Intellectual Ability		
Manipulative Skill		
Emotional Commitment		

SATISFACTION IN AN ACADEMIC SETTING[1]

YEHUDA AMIR and MOSHE KRAUSZ[2] *Bar-Ilan University, Israel*

THE study reported here is based on the hypothesis that the sources of a student's satisfaction alter as he passes through university. The main aim was to discover important sources of satisfaction for graduate and undergraduate psychology students, and to relate these to students' sex, age, family status and financial status and to the organization and standard of studies and social activities within the university. The main findings were that the standard and professional relevance of the course itself were regarded as of the utmost importance, with little stress placed on organization of courses, the social character of the university or the ratio of sexes. There was a tendency for satisfaction to decline from the first to the fourth year, but no noteworthy relationship was found between the biographical data and the importance attached to the various topics.

The problem of job satisfaction, or morale, as it is sometimes defined, has been the subject of much research in the fields of labour and industry, in the army and in educational institutions. Herzberg's (1959, 1966) theory of satisfaction further stimulated interest in the study of motivation and job satisfaction, provoked theoretical discussions and encouraged research. In the field of education, Coombs (1967) enumerates over 100 studies dealing with the adjustment of the student to the university, carried out during the last 25 years. The majority of these studies have been concerned with the relationships between mental abilities and scholastic achievements. Only recently has interest in other variables increased, only one of which is satisfaction.

Research on job satisfaction becomes more meaningful when combined with a study of the importance attached to the various factors conducive to satisfaction. Therefore, in the present study, the importance of the satisfaction variables was examined. The difference in satisfaction between students of different academic years was also investigated. The assumption underlying this research approach is that the student's image of the university and of his study alters as he advances in his learning and becomes more closely associated with the atmosphere of the university. The student allegedly enters the university with certain expectations and with a certain image of university life which changes during the course of his studies. It would seem that the freshman focuses mainly on peripheral factors, such as relations or group activities within the university, whereas the senior student concentrates on fundamental issues connected with the studies themselves and with the major subject being studied.

Another aspect of this study was the relationship between satisfaction and biographical variables, such as age, sex or financial situation. Here it was assumed that differences would emerge both in connection with the importance attached to various questions and in relation to degrees of satisfaction in different sub-groups.

The study proposed to gather information on the following questions:

1) What are the important and relevant

---

[1] This study was partly supported by a research grant from Bar-Ilan University, Israel.

[2] The authors would like to express their thanks to Yosef Schwarzwald, Chanan Rotem, Peri Krupnik and Avi Katoni, who participated in the design of the study and in the collection of the data.

sources of satisfaction in an academic setting, as seen by the students?

2) Are there differences in the level of satisfaction and in the importance ascribed to the different sources of satisfaction among students of different academic years?

3) Are there differences in satisfaction and in the importance among students of different biographical or demographic backgrounds?

Method

262 graduate and undergraduate students of the Department of Psychology at the Bar-Ilan University in Israel participated in this study.

A questionnaire was constructed comprising 69 closed questions and three open questions. The final form of the questionnaire was based on the findings of a pilot study and a pre-test. The first section was devoted to biographical questions and general questions on sex, age, family status, financial status, etc. The second section included Likert-type questions on satisfaction from 23 specific variables which covered five different fields: 1) the organization of studies in the University; 2) the organization of studies in the Department of Psychology; 3) the standard of studies in the University and the Department of Psychology; 4) psychology as a profession; 5) social relations and social activities within the Department and the University. The questionnaire also contained two questions on general satisfaction from the Department of Psychology and from the University as a whole. The third section of the questionnaire was also composed of Likert-type questions relating to the degree of importance of the topics which had appeared in the second section. Topics which seemed unimportant in the pilot stage were not included in the questionnaire.

The final questionnaire was mailed to the homes of the students, who were requested to return them without revealing their identity. Replies were received from 262 students, constituting 74 per cent of the student body of the department.

Results

In line with the first objective of this study, the average importance of each specific topic in the questionnaire was calculated. In accordance with these averages, the topics were ranked in order of importance. Table 1 shows the ranks of importance of various topics, according to the average of importance given to each of them by the students.

A study of Table 1 shows that students generally attributed the greatest importance to subjects relevant to psychology as a profession or to the study of psychology at the University. For instance, the importance of the level of courses provided by the Department is emphasized. Also stressed are: training for practical work in psychology, psychology as a career, prospects for work in the profession, the degree of individual tutoring and the academic atmosphere in the Department. This emphasis on psychology as a profession and as a subject for study indicates a practical and mature approach to learning, uncluttered by side issues. On the other hand, low importance was attached to administrative and organizational aspects within the Department and the University and to topics connected with the University in general, i.e., co-ordination between courses and the distribution of the study load, methods of marking and publishing marks, the human element in the University, the religious character of the University, and the ratio of the sexes in the University (which is, incidentally, unbalanced—one third male and two thirds female students). Between the two extremes of rank of importance we find issues connected with the social aspects of University life, such as relations between students and teaching staff, social relations between students, and the treatment of students by the academic secretariat.

Differences between Various Academic Years

The second object of the study was to examine differences in levels of satisfaction and importance between students of the various academic years. In these analyses, the general population was divided into five sub-groups according to academic year, namely four undergraduate groups (first to fourth year for BA) and one graduate group (students for MA degree). All MA students were grouped together because of their relatively small number.

Table 1: Ranking of means of importance of different topics

	Topics	Important means
1.	Standard of lecturers' courses in the Department[1]	1·16[2]
2.	Amount of study	1·21
3.	Training for practical work	1·29
4.	Psychology as a career	1·37
5.	Prospects for work in the profession with a BA degree	1·46
6.	Extent of individual tutoring within the Department	1·72
7.	Standard of assistants' courses	1·78
8.	Academic atmosphere in the Department	1·79
9.	Faculty/students relationships	1·89
10.	Form of examinations	1·92
11.	Treatment of the student by the academic secretariat	2·00
12.	Social relations between students	2·07
13.	4 years' requirement of study for the BA degree[3]	2·11
14.	Distribution of courses over the years	2·25
15.	Changes in the Department's demands from year to year	2·29
16.	Distribution of study time between the various courses	2·32
17.	Co-ordination between different courses	2·37
18.	Method and timing of publication of marks	2·37
19.	The human element in the University	2·43
20.	The importance of courses given by assistants	2·53
21.	The religious character of the University	2·94
22.	Systems of marking	3·03
23.	The ratio between the sexes of the students	3·49

[1] The ranking of topics is from the higher to the lower in rank of importance.
[2] The lower the figure the greater the importance it expresses.
[3] In comparison with three years in other universities in Israel.

Importance

Two types of analyses were carried out, one based on an analysis of variance of the ranks of importance in the different years, the other on intercorrelations of ranks of the importance of the topics in the five different groups. In the first analysis the issues were ranked within each year according to the average of importance attributed to them by the students of that particular year. The differences of ranking in the various academic years were tested by means of Friedman's non-parametric analysis of variance test (Siegel, 1956, pp. 166-172). This test revealed that the differences in ranking between the various years are significant at the 0·05 level, i.e. a difference exists in the order of importance attributed to different academic years. It transpired that the differences for the first four years, i.e. among all undergraduate students, were small, and only graduate students differ from the rest in the order of importance they gave to different topics.

There are high correlations between the first to the fourth year, and relatively low correlations between the MA group and each of the other four groups. However, it should be noted that the difference between the MA students and the undergraduates was mainly expressed in relation to issues of intermediate importance, mostly connected with administrative and organizational questions, such as the level of assistants' courses, form of examinations, distribution of courses throughout the years. These issues have little or no relevance for graduate students.

Satisfaction Level

As the questionnaire did not include a single question pertaining to general satisfaction, an attempt was made to formulate a single index of satisfaction by calculating for each student a mean satisfaction score, based on his answers to the 23 specific questions. The average differences of each student year were submitted to a one-way analysis of variance test (Edwards, 1950) which showed that the differences were significant at the 0·05 level.

Since differences in importance attributed to the Department and to the University were found (see Table 1), two separate indices were formulated and a second index composed mainly of topics connected with the University. Each of these indices included those specific questions whose correlation with one of the two general questions on satisfaction from the Department and the University was statistically significant. Each student tested received two new ratings based on the average of his replies to the questions included in both indices. Based on these indices the responses of the different academic years were recalculated. The results illustrate the tendency, already shown above, towards a decline in satisfaction from the first to the fourth academic year, graduate students approximating the overall average. Here again a one-way analysis of variance test (Edwards, 1950) reveals a significant difference between the averages of the different years. An additional comparison of the responses of students from the various study years on the two general questions revealed the same trend.

By a method similar to that used for importance, the questions on satisfaction were also ranked according to their average, but no significant difference was found to exist between the years.[1]

Differences on Biographical Variables

The third object of the study was to determine the relationship between various biographical data (such as age, sex, family status and financial situation), on the one hand, and the importance of the topics and the level of satisfaction derived from them on the other hand. However, an examination of these relations yielded no significant results.

Discussion

The main findings of the study were:

1) The topics ranked as most important were those bearing on the study of psychology. The relatively low ranking topics pertained to organizational or administrative matters. Issues connected with the character of the University, the composition of the study body and social aspects of university life also received low ratings of importance.

2) A significant difference was found between the ranks of importance of the various topics in different academic years. In fact, however, a great similarity existed between them, chiefly between the undergraduate years, with only graduate students constituting a separate subgroup which differed from the other academic years in the order of importance attached to different topics. However, even the graduate group differed from the rest of the students only in the degree of importance they attached to less important topics; for the important ones there seemed to be a general agreement among all academic years.

3) No differences were revealed between the ranking of satisfaction from various topics in different academic years; only when *level* of satisfaction was concerned, significant differences were found between the various years. The main tendency manifested in all comparisons employed here indicated a gradual decline in the level of satisfaction from the first to fourth year, while graduate students were similar to the average of all academic years.

4) No noteworthy significant relationship was found to exist between the biographical data examined and level of satisfaction and importance attached to the topics.

The mature and practical approach of the students to the subject of psychology and its study, as expressed in the ranking of importance conferred on these topics, can be explained by a series of reasons, most of which are particular to the Israeli student. The average Israeli student enters the university at a relatively mature age following military service for a period of two to three years. Most of the girls also serve in the army, while others render some form of national service. A large percentage of these students are also employed during the course of their studies because of financial necessity. Whereas only about 20 per cent of the first-year students in the Department work for their living, 90 per cent of the graduate students do so. The percentage of working students rises gradually from year to year, which can be attributed to the fact that the majority of students marry while still studying for their BA degree. Yet another contributory factor which, no doubt, strengthens this professional approach is the fact that students who study psychology are carefully screened and selected from numerous applicants for acceptance to the Department. Aronson and Mills (1959) also pointed out the relationship between the severity of initiation into a group and the degree of attraction this group possesses.

---

[1] The degree of satisfaction derived from different topics has not been presented here, as the authors feel that this has a purely local significance and relates primarily to the situation in this particular setting.

It is obvious from the findings that the graduate students constitute a sub-group in the student population which differs from the larger undergraduate group, and which places more stress on preparation for the profession of psychology.

The gradual decline in levels of satisfaction of undergraduates can be explained by the fact that the freshman lacks information about the Department and about psychology in general. His frame of reference and comparison is limited and only gradually, over the years of his study, does the image of his profession and studies take clear shape in his mind. He reaches the Department with a 'rosy' outlook and a positive attitude, which were shaped, at least in part, by his finally being accepted into the Department of Psychology. As time goes on, however, his grasp of the profession becomes more informed and realistic while he becomes somewhat disappointed as his original expectations are not easily realized. It is possible that a transition occurs from an idealized and generalized image to a differentiated and realistic one based on actual personal experiences. The different orientation of the graduate students appears to stem from the fact that most of them are already employed in professional or semi-professional positions. They are thus able to see psychology not only in the light of academic experience alone, but also in its practical aspects. They therefore evaluate certain topics somewhat differently from undergraduates.

The possible reason for the lack of a significant relationship between satisfaction and biographical data is that the general student population is relatively homogeneous and particularly so the student body of the Department of Psychology, which is screened on achievement and intelligence tests. Another possible reason may be related to the phenomenon mentioned above: the practical and purposeful approach of the student to his studies constitutes a factor of such central importance that the role of other factors, such as biographical characteristics, which might otherwise have affected the levels of satisfaction and the relative importance of the causes of satisfaction, is diminished or eliminated.

References

ARONSON, E. and MILLS, J. (1959). 'The effect of severity of initiation on liking for a group', *J. Abnorm. and Soc. Psychol.*, **59**, 177-81.
COOMBS, R. H. and DAVIS, V. (1967). 'Socio-psychological adjustment and collegiate scholastic success', *J. Educ. Res.*, **61**, 186-89.
EDWARDS, A. L. (1950). *Experimental Design in Psychological Research*. New York: Holt.
HERTZBERG, F., MAUSNER, B. and SNYDERMAN, B. B. (1959). *The Motivation to Work*. New York: Wiley.
HERTZBERG, F. (1966). *Work and the Nature of Man*. New York: World Publishing Co.
LEVINE, E. L. (1968). 'Job satisfaction among graduate students. Extrinsic versus intrinsic variables', *J. Appl. Psychol.*, **26**, 263-72.
SIEGEL, S. (1956). *Non-Parametric Statistics*. New York: McGraw-Hill.

STREAMING IN THE PRIMARY SCHOOL

A critique by **R. LYNN and SUSAN L. HAMPSON,** *Economic Research Institute, Dublin, with a reply by* **JOAN C. BARKER LUNN and JILL M. TARRYER,** *National Foundation for Educational Research*

Professor Lynn suggests that two investigations carried out by Dr. Barker Lunn have yielded inconsistent results: the first (cross-sectional) study showed that the attainment of children in streamed schools was superior and the second (longitudinal) study showed that streamed children did better on one set of tests and unstreamed children did better on a parallel set of tests. He suggests that the children in the first study were crudely matched for social class, and that both studies fail to solve the problem of streaming because of possible statistical distortions in the analysis.

Dr. Lunn replies that the apparently inconsistent results were due to the differences in the aims of the two stages. The cross-sectional stage, examining absolute measures of attainment, was exploratory—factors such as the individual pupil's social class, and his initial ability were not taken into account. The second or main longitudinal stage was concerned with the progress of one age group of children comparable in terms of sex, social class and ability throughout their junior school careers. In the latter stage the problem of social class was overcome by examining the progress of children who were comparable in this respect.

Dr. Lunn rejects Professor Lynn's statement that streamed children did better on one set of tests and unstreamed children did better on the other as a misrepresentation of fact. Non-streamed schools in Sample A (working on *both* tests) tended to do better and streamed schools in Sample B tended to do better, although there were no significant differences between 85 per cent of the comparisons of mean scores.

We should like to draw attention to what appear to us to be some puzzling features of the NFER's reports on streaming in primary schools (Barker Lunn, 1967, 1970). Since these are likely to be relied upon to justify administrative changes in streaming policy, it is important that there should be no doubt about the authenticity of the results.

The first point that strikes us as curious is that the two investigations should yield inconsistent results. The first investigation was a cross-sectional study of 42 matched pairs of streamed and unstreamed schools. All children from seven to eleven years old in these schools were tested on reading, English comprehension, and mechanical and problem arithmetic. For all comparisons the attainment of the children in streamed schools was superior and most of the differences found were statistically significant.

The second investigation used a longitudinal method, testing children from 36 matched pairs of streamed and unstreamed schools each year from the age of seven through to eleven. On the basis of their reading score at seven (corrected for age) the children were allocated to three ability groups and their progress at the age of eleven was examined in relation to their initial level. The schools were further split randomly into two groups which worked two parallel sets of tests. Attainment gains made by children of the same sex, ability level and social class in the two types of school were compared using the method of residual gain. The result was that on one set of tests the streamed children made greater gains and on the other the unstreamed children. Thus, taking the two groups together, there was no overall difference between the progress of children of similar ability in the streamed and unstreamed schools.

Such an inconsistency between the first and second investigations must have arisen as a result of an error in one of them, since it is impossible for two properly conducted studies of the same phenomenon to yield discrepant results. Which study is at fault?

The first study is methodologically much the simpler of the two and it is difficult to see how an error can have arisen except from inadequate matching of the streamed with the unstreamed schools. The author seems to have taken considerable pains to get the matching right, since she says that 'each of the non-streamed schools was matched with the most similar streamed school which could be found, using the following criteria for matching: (a) type of school: junior or junior with infants; urban or rural; (b) number of classes in the school; (c) average number of pupils per class; (d) geographical region; (e) percentage of children in LEA attending non-selective schools; (f) predominant social-economic class of parents; (g) approximate matching of percentage of parents of professional, clerical and skilled occupations'.

Although the procedure seems to have handled the matching with a good deal of thoroughness, there is some doubt about the exactitude of the matching on social class. The two sets of schools were first matched by asking the head teachers to estimate the proportions of parents in each of five social categories (professional, clerical, skilled, semi-skilled and unskilled). It seems certain that head teachers would be unable to do this task with complete accuracy. Subsequently, the class teachers were asked to assess the social class of each child in their class. The results of this step showed that the children in the streamed schools came from a slightly higher socio-economic background than those in the unstreamed.

Thus, either the head teachers' estimates or the class teachers' estimates must have been wrong. If the class teachers' estimates were right, the results of the whole investigation can be dismissed as due to inadequate matching of the two sets of schools. It seems to us highly unfortunate that no effort was made to investigate this point. Class teachers' estimates of the social class of parents are obviously a crude yardstick. The allocation of people to different social classes is a notoriously difficult procedure requiring strict definitions and precise knowledge of a large number of occupations. We suggest that two things should have been done. The best thing would have been to have obtained exact information on social class and have matched the schools properly. The second best thing would have been to have re-matched the two sets of schools after the unfortunate disparity in teachers' estimates of social class had been discovered. This should be a fairly simple step and would have allowed us to see how far the superiority of the streamed schools was due to a higher social class level—albeit this itself had been rather coarsely assessed. It seems to us unfortunate that the author should have taken neither of these steps. The results as they stand are valueless for the streaming issue, since the superiority of the streamed schools could be due either to effects of streaming or to the superior social class level. In a study which has involved so much effort, perhaps the author could still carry out the proper analysis.

We turn now to the second investigation. As stated above, this was a longitudinal study comparing the progress of children in streamed and unstreamed schools from the ages of seven to eleven. The first curious feature of this study was that two parallel tests were used, half the streamed and half the unstreamed working one set, and the other half working the other. The results of the two tests were inconsistent. On one set of tests the streamed children did better and on the other set the unstreamed did better.

Such a result does not seem to us to make any sense. It is impossible to have two equivalent tests of the same ability which yield conflicting results of this kind on two groups. You could not, for instance, have two tests of neuroticism, one of which showed that men were more neurotic than women while the other showed the contrary. If such a result were obtained, the only conclusion to be drawn would be that some error had occurred in one or both of the investigations. Hence we suggest that the discrepant results of the two tests show that there must, necessarily, be some error in this study.

We cannot detect, from the data published, where this error lies. It is conceivable that the supposedly equivalent tests were not equivalent but were measuring different skills, one of which was favoured by streaming and the other by unstreaming. In addition, the use of the reading ages of the seven-year-olds as an estimate of intelligence against which to measure subsequent academic attainment seems unsatisfactory. As Dr. Barker Lunn herself points out, children's attainment in reading at seven-plus must depend to some degree on the time spent, and the particular type of teaching given, in the infant school. It is likely that there are already differences between streamed and unstreamed schools in reading ages among seven-year-olds (as found in the first study), so that it does not seem legitimate to try to match children from the two types of school by using reading ages as an index of intelligence. It seems probable that if children in the streamed and unstreamed schools had the same mean reading ages at the age of seven, then those in the unstreamed schools may have been somewhat more intelligent: there tends to be less formal teaching in unstreamed schools, so the unstreamed children have managed to achieve the same reading ages in spite of having had less attention paid to the acquisition of reading skills. Possibly this is why unstreamed children are still doing as well as streamed (taking the results of both tests together) at the age of eleven.

Finally, to estimate progress on the different attainment tests Dr. Barker Lunn and her colleagues have used a rather complex method of 'residual gain'. This method depends not only on the standard error of the difference between the means, but also on the reliability of the figures for the co-variances and regressions. It is impossible to tell from the data given whether or not any distortions entered into the study during this stage of the calculations. But if, say, the means for reading ages test A and B were not the same at the age of seven, or the trends, age by age, were different, then the regressions would be different. It seems possible that this might have been the case for several tests.

Consider the data (A tests) marked N*** on p.368. The 'adjustment' *increases* the non-streamed mean from 112·21 to 114·58 and *lowers* the streamed mean from 107·52 to 105·72; the difference is thus nearly doubled. Unfortunately the standard deviations are not given, so we cannot guess the degree of significance that would have existed without the 'adjustment'. On p.375 (B tests) the adjustment slightly favours the streamed schools in the two cases where there is a significant difference (marked S*). Generally, however, the 'adjustment' seems to favour the unstreamed school though it is less marked for the B tests. Hence, we suggest that it is almost certain that the co-variances and consequent regressions produced some distortions in the results reported.

In view of the points we have raised it does not seem to us that either of the NFER studies can be regarded as making a definitive contribution to the problem of the value or otherwise of streaming in the primary school.

References

BARKER LUNN, J. C. (1967). 'The effects of streaming and non-streaming in junior schools: second interim report', *New Res. in Educ.*, **1**, 46-75.

BARKER LUNN, J. C. (1970). *Streaming in the Primary School*. Slough: NFER.

REPLY by JOAN C. BARKER LUNN and JILL M. TARRYER, *National Foundation for Educational Research*

Professor Lynn's and Susan Hampson's criticisms are based on a number of misconceptions and the points they raise are in fact covered in either the first report or the book. Firstly, it is worth emphasizing that only one investigation was carried out and not two as the Lynn-Hampson article implies. The cross-sectional and longitudinal stages took place in the same schools,[1] and the sample for the latter consisted of the pupils who were aged seven at the time of the former. Besides providing quick but preliminary information for Plowden, the cross-sectional stage served as a pilot for the main inquiry. The reasons for regarding the longitudinal stage as the study proper are given in both the book (see for example p. 13) and the interim report (see p. 46).

There is nothing curious about the inconsistent results of the cross-sectional and longitudinal stages since each was looking at essentially different aspects of the problem. The former was concerned with absolute measures of attainment of children in the four different age groups in the school in 1964; the latter was concerned with only the seven-year-olds and their academic progress throughout their junior school career. Cross-sectional studies, however, have certain disadvantages. The most notable of these is that inferences about the growth or development of children based upon children of different ages are less dependable than inferences about the same group of children tested or examined at intervals of time. Another disadvantage is that there is no means of correcting for initial differences between the groups being compared so that when comparisons are based on absolute scores, as in the cross-sectional stage, it is difficult to assess how much of the difference is due to extraneous factors and how much is due to the effects of a particular type of school organization. Numerous factors might be expected to influence a child's score, as well as the type of junior school attended. These include his infant school experience; the type of teacher (as defined in the study) in the past and in the present, particularly in non-streamed schools; his social class and so on. To overcome these problems a longitudinal study was made in which the pupil's development or academic progress was measured over a period of time. In this his initial score at seven-plus was taken into account. Also an exploratory analysis determined which other factors were related to progress and should be controlled—social class, for example, being one.

---

[1] Twelve of the schools had to be omitted in the latter stage, mainly for reasons of organizational change.

As regards Lynn and Hampson's comments on the matching of the schools on social class: sample selection was in fact based on the head teacher's estimates of the social background of his pupils—this gave a rough idea of the school's catchment area. Only this kind of information could be obtained since over 2,000 schools were involved—and at the survey stage one could hardly ask for details about each pupil. However, once the schools had been selected, and had indicated their willingness to co-operate in the research, then more detailed precise data were obtained. Class teachers reported the social class of each child. Details as to what method teachers had used for determining the parental occupation indicated that the vast majority had asked the pupils what their fathers did, had asked the parents, or had looked it up in the school records. Less than three per cent had based the information on their own estimate of the child's social class.

So at first in the cross-sectional stages there were slight differences between the schools in terms of their social class. Lynn and Hampson suggest that we should have re-matched the schools for social class on the basis of the class teacher data, and as is described in Appendix 5, p. 330, this was in fact done in the longitudinal stage.

Since the main purpose of the cross-sectional stage was to indicate those areas which should be given particular attention in the longitudinal stage, the slight difference between the schools in terms of their pupils' social background was considered unimportant in that it could be rectified in the main inquiry. Social class was found to be related not only to initial score but also to progress made, and in the longitudinal stage of the study, the social class of each pupil was taken into account. Thus Lynn and Hampson's criticisms of the cross-sectional stage lack foundation when considered in the context of the study as a whole.

Turning now to the criticisms of the longitudinal stage—the allegation that 'on one set of tests the streamed children did better and on the other set the unstreamed did better' is not correct. The total sample was split into random halves, Sample A and Sample B. For three out of the four years Sample A worked one set of tests and Sample B a parallel set. But in the third year the tests were swopped so that the two samples had the other tests. The results indicated that *whichever tests were used*, the non-streamed schools in Sample A tended to be superior and in Sample B the streamed schools to be superior. So there was no bias in the tests—they in fact gave consistent results (see *Streaming in the Primary School*, p. 62). What is worth emphasizing here is that in both samples A and B the vast majority, approximately 85 per cent, of comparisons of mean scores between streamed and non-streamed schools were not significantly different. The differences in means found in samples A and B involved only 12-15 per cent of the comparisons made.

On the question of the use of the reading test, it was chosen principally because of all the tests available it was the most free from curriculum-bias—since both types of school share the aim of teaching children to read. A reason for not using the other tests—such as the mechanical arithmetic and English—as a measure of general ability, was that the scores obtained on these tests were more highly related to the type of teaching given than was the case for reading (See *Streaming in the Primary School*, pp. 15-17, 58). Thus the reading test score was used as an initial estimate of the child's general ability and based on it the child was allocated to one of the three 'ability' groups. Comparisons of academic progress were then made between streamed and non-streamed schools within these three ability groups. Had a suitable test been available, an estimate of general ability could have been made from an intelligence or verbal reasoning test, but any advantage gained would have been very slight since such a test depends on the child's ability to read when administered in the group situation.

Lynn and Hampson criticize the use of 'residual gain' on the grounds that it is complex. This is in fact a complicated name for the very simple concept that progress can be measured by the difference between the observed final score and the predicted final score. This means that a positive residual gain would be recorded whenever a child scored better than would have been expected on the basis of his initial test score.

In Appendix 8 of *Streaming in the Primary School* it is shown that the difference between two residual gains is equal to the difference between the adjusted final means which would have been obtained from a co-variance analysis of the same data. In other words, a comparison of two residual gains is equivalent to a comparison between two mean scores which have been adjusted so that differences between initial measurements have been taken into account. In the example quoted by Lynn and Hampson they give the final and the adjusted final mean scores. They do not say that the actual mean score for the non-streamed children increased from 104·89 to 112·21, and that of the streamed children decreased from 112·76 to 107·52 between the ages of seven-plus and ten-plus. This resulted in a positive residual gain for the non-streamed children and a negative residual gain for the streamed children, so that it is not surprising that the difference between the adjusted final means is larger than the difference between the unadjusted means.

It was recognized at the analysis stage that the different findings for the two samples A and B might indeed have arisen because of differences in the regression relationships within each sample. These regression relationships were therefore examined for deviations of the kind suggested by Lynn and Hampson. No such effects were observed. In fact, no evidence was found of any fundamental difference in the regression relationships recorded for the two half samples.

DOING A DEGREE AT A TECHNICAL COLLEGE—WHO DOES AND WHY?[1] (I)

JANET ASKHAM *formerly of the Advisory Centre for Education, and now Research Fellow, Department of Sociology, Aberdeen University*

This article presents some of the findings of a research project on students who do degree courses at technical colleges. The aim was to discover what sort of students apply to technical colleges and to investigate the motivation behind their application. The research showed that the students (excluding those doing sandwich courses) are similar to university students in age, sex, social class and type of secondary education but that their 'A' level achievement was inferior. Most of them applied to go to university but were rejected. The technical college degree course is shown as being a second-best alternative for students already strongly motivated towards gaining a degree.

Apart from a general academic interest, the Advisory Centre for Education was concerned with this subject because, since 1964, it had been running an Information Service and Clearing-House Scheme for would-be technical college applicants. This Service had published each week during the summer months a list of all vacancies at technical colleges in degree and degree-level courses. It was felt that many young people who could have been accepted at a technical college were not aware of the fact that is was possible to do a degree there. It was known that several hundred of the places available at technical colleges each year for degree-level courses were never filled, for although many colleges cannot state exactly how many vacancies remain (since they have no set quota) the *approximate* number of vacancies in 1965 and 1966 were as follows: 1965: degree courses, 1150; non-degree courses (e.g. HND), 3450; 1966: degree courses, 2050; non-degree courses, 2950.

In 1966 the Department of Education and Science set up an official clearing-house scheme. The grant which the Advisory Centre for Education received from the DES was partly to enable us to compare the working of the two schemes. While this aim was important and influenced our method of investigation it did not overshadow those aims set above, which it was felt would command a wider general interest. The survey of the process of application to technical colleges was conducted by postal questionnaire and interview. Questionnaires were sent to a sample of students who had in 1966 made use of the ACE Clearing-House Scheme (544 replies) and a sample of those who had used the official clearing-house scheme (220 replies). In personal interviews with 30 students, we investigated in greater depth the motivations behind the application to do a degree at a technical college. Thirdly, a further sample of 257 students who had just completed their first year of a degree course at a technical college (1966/67) replied to a second postal questionnaire.

We look first at the process of application to a technical college. Is the information and advice available to students adequate or not? The first source of information about further education and training courses which springs to mind is the student's school. We asked our students how helpful they had found their schools in providing information and advice on degree courses, both at universities and at technical colleges. The difference for the two types of establishment is striking (Table 1).

---

[1] This research was conducted in 1966/67 on behalf of the Advisory Centre for Education, with the aid of a grant from the Department of Education and Science.

Table 1:

(a) Percentage of students who found their school very or fairly helpful in giving information and advice on technical college courses.

students who used ACE clearing-house scheme	21%
students who used local authority scheme	31%
students who used neither scheme	23%

(b) Percentage of students who found their school very or fairly helpful in giving information and advice on university courses.

students who used ACE clearing-house scheme	68%
students who used local authority scheme	67%
students who used neither scheme	58%

Secondly, we asked our sample of students now at technical college what proportion had made use of either the ACE or the local authority clearing-house schemes. Only a small proportion had done so—14 per cent had used the ACE scheme, and nine per cent the local authority scheme. The majority of the rest (85 per cent) had not even heard about the schemes. For these students knowledge about the possibility of doing a degree at a technical college and about vacancies came from a wide variety of sources (Table 2).

Table 2: Sources of information about degree courses and vacancies at technical colleges of students who used neither the ACE nor the local authority scheme

	%
School	20
Press	19
Friends	12
Direct from technical college	12
Books, pamphlets	11
Employer, sponsoring firm	9
Youth employment office	5
Parents	1
Other	11

The third factor which might throw some light on the adequacy of the information available is the *time* when students found out about the possibility of doing such a course. The evidence is that it was not in most cases until relatively late (Table 3).

Table 3: Time when students† found out about technical college degree courses

	%
1964 or earlier	7
1965	13
1966 (month not stated)	5
1966—first quarter	15
—second quarter	12
—third quarter	37
—fourth quarter	4
Other answers	7
Total	100

(† sample of students who had completed one year at technical college.)

Further evidence is provided by looking at the time when students who had used one of the two information services found out about these schemes. Three-quarters of those who used the ACE scheme did not find out about it until August 1966 or later (and 40 per cent not before September 1966). The local authority scheme was instigated in June 1966. Sixty-five per cent of those who used this scheme did not find out about it before August 1966 (and 35 per cent not before September).

These data show, I think, one of the main reasons why more students do not apply to technical colleges to do degrees: schools are unhelpful and information about such courses is hard to get—perhaps being a matter of luck in many cases. Certainly the technical colleges have not yet become established as a well-known route to a degree, with application almost a part of the school curriculum, as university application often is for the sixth-form pupil.

Motivation

What is it that causes some students to apply to technical colleges to do degree-level courses? We look first at some of their basic characteristics to see whether they differ in this respect from university applicants. Table 4 compares our sample of applicants who used the ACE or the local authority information services, with those from this sample who were accepted at a technical college and with our second sample of those who have just completed one year at a technical college. The 'applicants' differ little from those 'accepted' and have characteristics much the same as those one would expect of university applicants. The sample of those who have completed their first year do differ somewhat—being more overwhelmingly male, slightly older, more likely to come from social class III, and less likely to have been to an independent school—this is due to the different route by which many of these students reached technical college (e.g. following technical qualifications or being sponsored by the firm for which they worked).

But though the students do not differ greatly from university students in age, sex, social class or type of schooling, they do differ when it comes to number and grades of GCE 'A' levels. The students in our samples of those who used the ACE or the local authority schemes are more likely than university students to have two rather than three 'A' levels, and less likely to have such high grades. The figures below show examples of these findings (Table 5).

Table 4: Characteristics of technical college students

	Applied to Technical College—Used ACE or Local Authority Scheme %	*Accepted at Technical College—Used ACE or Local Authority Scheme* %	*Completed One Year at a Technical College* %
Male	72	74	83
Female	27	26	17
Not Known	1	*	*
19 years or under	78	79	49
20 years	10	9	30
21 years or over	10	11	21
Not Known	2	1	—
Social Class I	20	18	12
II	56	57	43
III	13	14	30
IV	4	5	7
V	*	*	1
Not Known	7	6	7
Grammar School	42	44	52
Comprehensive	6	5	5
Independent	21	23	7
Direct Grant	11	10	4
Technical College	8	7	13
Other/Not Known/ Not Applicable	12	11	19

Table 5: GCE advanced level results

	Students Who Used ACE Scheme %	*Students Who Used Local Authority Scheme* %	*University Students (1965)* %
2 'A' levels	41	38	13
3 'A' levels	39	44	76
Other	20	18	11
Combinations of 'A' level grades—			
AAA/AAB/AAC/ABB AAD/ABC/BBB	0·6	0·4	24·7
BEE/CDE/DDD/DDE CEE/DEE/EEE	21	25	10

Conclusion

These findings give an indication of why such students applied to do a degree at a technical college—their 'A' level grades were too low or they did not have enough subjects to be accepted at university. One of our main interests was to attempt to discover what made these students desire a degree, and what made them apply to a technical college for a degree course. Was it, for example, that they thought a technical college the best place for them to study their desired subject, or was it because they did not—or thought they would not—get to a university, or was it because when their 'A' level results came out they found they had done better than expected and therefore decided to go on to further education, whereas they had not formerly considered it? These questions could only be touched upon tentatively in the postal questionnaire, but our 30 personal interviews gave us firmer indications of the motivations behind technical college application. Looking first at students who made use of one or other of the clearing-house schemes, we found that the vast majority had been strongly motivated towards a university degree course. Ninety-one per cent of those who had used the ACE scheme, and 85 per cent of those who had used the local authority scheme had applied to university, and 80 per cent of those accepted at a technical college specifically stated that they would have preferred to go to university. The personal interviews gave us a picture of young people who had, over a fairly long period of time, become strongly motivated towards doing a university degree. The main factors influencing them were (i) parental pressure or encouragement, (ii) schools in which university entrance was upheld as the height of achievement, or (iii) a strong desire within the student himself for a secure or high status job. Because of this strong desire for a degree, once their university application had been rejected, they seized eagerly upon the possibility of doing a degree course elsewhere. The main reason for their application at a technical college was therefore rejection by a university.

The sample of students who were contacted after one year at a technical college included 28 per cent who were doing sandwich courses. If these students are excluded the results are similar to those reported above. Seventy-five per cent of non-sandwich course students had applied to university and had been rejected, and 73 per cent said they would have preferred a university course. (Only 32 per cent of those doing a sandwich course said they would have preferred a university degree.)

The implications of these findings for the technical colleges are that (leaving aside those doing sandwich courses, who have traditionally gone to technical colleges) more information about the courses needs to be more widely publicized if it is desired to increase the numbers and type of students doing degrees at technical colleges. Also, one needs to ask what effect is produced upon the students by the fact that the majority see a technical college degree course as a second-best alternative following the frustration of their desire to go to a university. One might also need to ask whether the standard of a technical college degree course is, in fact, lower than that of a comparable university course.

SOCIAL CLASS FACTORS IN A NEW ZEALAND COMPREHENSIVE SCHOOL

R. K. HARKER *Education Department, Victoria University of Wellington*

DESPITE the ideology of classlessness, and of equal opportunity for all which exists in New Zealand, this research report indicates that the relationship between socio-economic origin and the child's level of school attainment is significant, and of a similar magnitude to that reported by Floud and Halsey. The streaming process which exists in nearly all New Zealand secondary schools (which are exclusively comprehensive) has much the same effect on the further educational opportunities of children from particular socio-economic groups as the selective school system in Britain.

It is part of the mythology of New Zealand society and of the New Zealand educational system that it is classless, and opportunity is open to anyone regardless of social or ethnic origin. The existence of the 'welfare state', minimum wage differentials, and the universal non-selective secondary school system have all been held to mitigate against the development of class inequalities in educational and vocational opportunities. However, if the basis of class differentials in education is, among other things, linguistic in origin as described by Bernstein,[1] then differentials between the educational opportunities of the children of white collar workers and those of manual workers appear to be likely to continue to operate in a country such as New Zealand, despite economic equality.

Briefly, Bernstein states that two languages exist simultaneously in a society. Firstly, a 'public' language (restricted code), known to all, of a direct, concrete nature, and of the simplest grammatical structure. Secondly, a 'formal' (elaborated code) of greater complexity and flexibility, and of a more complex grammatical structure, enabling an individual who possesses such a language to elaborate his experience and build up more complex and differential conceptual hierarchies. It is Bernstein's thesis that a middle class child learns both these linguistic patterns and also learns the situations for which each pattern is appropriate, while the working class child is restricted to the 'public' mode of expression and applies it to *all* situations. Such a view can be used to explain the social class differences in verbal IQ test performance, and later achievement where such a test is used to separate children into different schools or streams.

Bearing in mind the factors set out above, it is the intention of this report to show that the streaming of pupils in a New Zealand comprehensive school performs the same function as the tri-partite selection carried out by many English education authorities. This is to say, pupils from a 'working class' background are at an educational disadvantage just as much in New Zealand as in England.

Method

One large comprehensive school, typical of suburban, co-educational schools throughout New Zealand, was used in the survey. A total of 298 third formers (the first year of entry) from the 1968 intake were used as the sample, and they were divided into four groups on the basis of their father's occupation.[1] Such a grouping does not imply that the author sees New Zealand society as consisting of four social classes: it is simply a device used to try to determine the influence of socio-economic circumstances upon some aspects of educational achievement. The four groups are as follows:

---

[1] BERNSTEIN, B. 'Some sociological determinants of perception', *Brit. J. Sociol.*, 9, June 1958, 159-74. But see JENSEN, A. R., 'How much can we boost IQ and scholastic achievement?', *Harvard Educ. Rev.*, **39**, 1 (Winter 1969), 1-123, for the likely limits of such environmental factors.

1. *Professional* (P) The children of doctors, solicitors, professors, architects, engineers, accountants, directors of large companies, and high level civil servants (N=42).

2. *Upper White Collar* (UWC) The children of middle grade civil servants, university lecturers, training college lecturers and secondary school teachers (N=97).

3. *Lower White Collar* (LWC) The children of small businessmen, foremen, technicians, contractors, salesmen and clerks. (N=84).

4. *Manual* (M) The children of painters, taxi-drivers, railway workers, drivers, factory hands, scaffolders, mechanics, carpenters and fitters (N=75).

On the basis of these four groups, the scores of the children on a verbal IQ test (Otis) were analysed, together with scores on a reading test (ACER) and an arithmetic test (VG 7). It is on the basis of these scores that the children were streamed. The social class content of the streams was then examined, as were the option choices made by the children (Apart from a 'core' course, pupils can opt for one of Latin, French, Bookkeeping or Modern (woodwork-metalwork for boys, commercial-home science for girls)).

---

[1] The grouping is my own, as the standard New Zealand classification of occupations (that of Congalton, A. A. and Havighurst in the *Austral. J. Psychol.*, **6** (1954), is in need of revision.

Results

Table 1: Mean Otis test scores for each socio-economic group

GROUP	BOYS	(SD)	GIRLS	(SD)	TOTAL	(SD)
P	114·125	14·73	119·6	9·71	115·43	13·9
UWC	107·4	14·48	112·4	12·5	109·7	13·81
LWC	103·77	13·7	106·61	16·0	105·0	13·65
M	99·05	12·75	97·32	15·12	98·27	13·9
All Children	105·66	12·445	107·21	15·1	106·31	14·9

Table 2: Mean score on the ACER reading test for each socio-economic group

GROUP	BOYS	GIRLS	TOTAL
P	36·41	42·7	37·9
UWC	32·8	38·53	35·45
LWC	31·6	34·25	32·74
M	29·125	30·75	29·48
All Children	32·09	35·52	33·53

Table 3: Mean scores on the VG 7 arithmetic test, by socio-economic group

GROUP	BOYS	GIRLS	TOTAL
P	22·47	24·1	22·85
UWC	21·37	22·25	21·77
LWC	18·92	22·06	20·26
M	17·5	18·09	17·53
All Children	19·87	21·21	20·43

As can be seen from Tables 1, 2 and 3, the relationship between socio-economic group and achievement is consistent and significant and of a similar order to that found in England.[1] With such a pattern emerging in the tests, then it is to be expected that the professional group would get proportionally more places in the upper streams and be more likely to choose the academic options (bearing in mind parental influence in this latter case).

Table 4 shows that the Professional group has 60 per cent of its members in the top three streams, while the Manual group has only 1·3 per cent. Conversely, the bottom three streams contain half the Manual group, but only five per cent of the Professional group. Bearing in mind that the majority of the future university students in the total group can be expected to come from the top streams, then already, in the first year of secondary schooling, the proportion of Manual group children in the most favoured group for further education is greatly reduced. This characteristic of the Manual group is reinforced by Table 5, Option choice.

This table indicates a marked preference for the more academic subjects on the part of higher socio-economic groups (79 per cent for P group against 11 per cent for the M group—Latin and French combined). The clustering of the lower socio-economic groups in the 'Modern' option (woodwork, metalwork) could be seen as indicating a preference for 'concrete' learning as opposed to the more abstract nature of a foreign language. It could be hypothesized that it is the nature of verbal learning in the lower class home which restricts their children to this option choice, but more detailed research would be needed to establish this. The influence of socio-economic background can be highlighted in this respect by examining option choice, holding IQ score constant at a low-average level (95-105).

Table 6 shows that despite the fact that the Manual group children in such a range will be inherently more able than the Professional group (due to the verbal loading factor in favour of the professional group), the Manual pupils are clustered at the vocational, non-academic end of the scale, while the higher groups move progressively into the academic options.

Discussion

The school does not select children on the basis of socio-economic background directly, but

Table 4: Percentage of each socio-economic group in the top and bottom streams

GROUP	TOP STREAMS (LATIN, 1 and 2)			BOTTOM STREAMS (6, 7 and 8)		
	Boys	*Girls*	*Total*	*Boys*	*Girls*	*Total*
P	56	70	60	6	0	5
UWC	46	53	50	21	11	16
LWC	35	31	32	33	36	35
M	12	15	13	49	50	49

Table 5: Option choice by socio-economic group (percentages)

GROUP	LATIN			FRENCH			BOOK-KEEPING			MODERN		
	Boys	*Girls*	*Total*	*Boys*	*Girls*	*Total*	*Boys*	*Girls*	*Total*	*Boys*	*Girls*	*Total*
P	47	50	48	31	30	31	16	10	14	3	10	5
UWC	19	22	21	42	51	46	29	13	22	10	13	11
LWC	12	11	12	15	14	14	29	22	26	46	53	49
M	0	6	3	5	12	8	34	15	25	61	68	64

---

[1] See, for example, DOUGLAS, J. W. B. (1964). *The Home and the School*. London: MacGibbon and Kee, or: FLOUD, J. and HALSEY, A. H., 'Social Class' Intelligence Tests, and selection for Secondary Schools', in HALSEY, A. H., FLOUD, J. and ANDERSON, C. A. (1961). *Education, Economy and Society*, 209-215. New York: Free Press.

Table 6: Option choice by fathers' occupation (Otis scores constant). No. of children

GROUP	LATIN	FRENCH	BOOK-KEEPING	MODERN
P	—	3	2	1
UWC	1	7	7	3
LWC	—	6	8	12
M	—	2	5	19

selects on the basis of verbal ability, which indirectly achieves the same purpose. The linguistic differential, as outlined by Bernstein, can be seen to have a marked effect upon educational achievement and the possibilities of further education. This is not to say, of course, that the school should change its criteria of internal selection, for without adequate and confident verbal ability it is not likely that a student will succeed in higher education. Rather does this evidence suggest that the primary schools have failed to cater for the linguistic impoverishment of lower socio-economic group children. The abolition of streaming (or of the 11-plus in the English context) merely seeks to cure a symptom rather than to attack the real cause — the *linguisti* impoverishment of the home and neighbourhood of the *economically* impoverished.

This problem is even more serious in New Zealand since Maori children come very largely from the lower socio-economic group and are therefore doubly handicapped at school. On the one hand they suffer all the disabilities of the European child from the lower socio-economic group, and on the other, the school makes few concessions to their culture, its value or its language. The same situation exists in England with regard to the children of immigrants and the situation in both countries demands action:

1. in terms of linguistic enrichment programmes at pre-school and primary school;

2. the adaptation of the school to the children it is trying to teach.

The alternative to such action in multi-racial societies is the increasing solidification of classes along ethnic lines and the creation of an explosive social situation.

CHECK-LIST FOR EVALUATING ANALYTICAL/LITERARY STUDIES

J. ANDERSON *Faculty of Education, University of New England, Australia*

THE growing numbers of analytical or literary studies demand a careful evaluation of objectives, procedures and the analysis of the results. The author presents a check-list of criteria for assessing the value of such studies. His check-list for evaluating empirical and experimental studies in educational research appeared in *Educational Research*, **11,** 1.

The first scientific journal is said to have appeared in 1665. By the beginning of the nineteenth century, according to Mumford (1964), there were 100 journals. The number had swelled to 1,000 by the middle of the nineteenth century and to 10,000 by the start of the present century. One hundred thousand journals is Mumford's prediction for the close of the century and with under 30 years remaining this prediction looks well on the way to being fulfilled.

A check-list for evaluating analytical/literary research studies

	UN-ACCEPT-ABLE	POOR	MEDI-OCRE	GOOD	EXCEL-LENT
A. *Objectives*					
1. Statement of purposes of study	a	b	c	d	e
2. Contribution of study to existing knowledge	a	b	c	d	e
3. Description of background to study	a	b	c	d	e
4. Evaluation of previous studies in the field	a	b	c	d	e
B. *Procedures*					
5. Statement of underlying assumptions	a	b	c	d	e
6. Statement of limitations of study	a	b	c	d	e
7. Definition of important terms and concepts	a	b	c	d	e
8. Description of methods for locating source material	a	b	c	d	e
9. Selection of source material	a	b	c	d	e
10. Quality of source material	a	b	c	d	e
11. Documentation of source material	a	b	c	d	e
12. Establishment of reliability of evidence	a	b	c	d	e
C. *Analysis*					
13. Analysis of facts	a	b	c	d	e
14. Critical evaluation of material	a	b	c	d	e
15. Logic of argument	a	b	c	d	e
16. Clarity of interpretation	a	b	c	d	e
D. *Conclusions*					
17. Statement of findings	a	b	c	d	e
18. Substantiation of conclusions	a	b	c	d	e
19. Logical organization of report	a	b	c	d	e
20. Quality of writing	a	b	c	d	e

Educators and researchers know the difficulty of keeping up to date with even a limited part of the field of education. More than ever there is a need for careful evaluation of published material. For those who are not actively engaged in research or in teaching research methodology there is the danger of accepting uncritically the findings of research simply because they have been published. That editors of research journals themselves are often guilty of a lack of critical evaluation was made dramatically clear in an unpublished study of the American Educational Research Association cited by Wandt (1965). Fifty-two per cent of a random sample of journal articles examined were rejected by experienced judges as unfit for publication; 41 per cent were rated as requiring some revision; and only seven per cent were judged worth publication without change.

A number of check-lists for evaluating educational research have appeared in recent years. For the most part these check-lists have been produced for evaluating empirical and experimental studies. Such, for example, are the check-lists of Johnson (1957), Van Dalen (1958), Farquhar and Krumboltz (1959), Wandt (1965), Suydam (1968), Anderson and Kerr (1968), and the unpublished list of criteria of Lesser. It is understandable, perhaps, that criteria should have been drawn up for empirical and experimental studies since there is in these studies a generally agreed sequence of procedures. There is evidence, too (Anderson and Kerr, 1968), that the use of check-lists helps to make evaluations more objective.

There is, however, a very marked absence of any lists of criteria for evaluating studies other than in the empirical or experimental field, although Van Dalen (1958) does include sections on historical and descriptive research in his very lengthy check-list. The procedures and methods of analysis involved in analytical or literary studies are more diverse than in empirical or experimental studies, yet there are certain common elements. One list of criteria that has proved useful at the University of New England is given above. There are two ways in which the check-list is primarily used. First, it is used as described above in research methodology classes to assist students to evaluate certain studies in the literature. It enables students at least to judge articles according to common standards. Second, it is used by students to evaluate their own writing, to see what they have written as others might see it. Not all the criteria will apply to every study but the check-list may be adapted to meet particular needs.

References

ANDERSON, J. and KERR, A. H. (1968). 'A check-list for evaluating educational research', *Educ. Res.*, **11**, 1, 74-5.

FARQUHAR, W. W. and KRUMBOLTZ, J. D. (1959). 'A check-list for evaluating experimental research in psychology and education', *J. Educ. Res.*, **52**, 9, 353-4.

JOHNSON, G. B. (1957). 'A method for evaluating research articles in education', *J. Educ. Res.*, **51**, 2, 149-51.

MUMFORD, L. (1964). *The Automation of Knowledge*. Professional Reprints in Education, 8011. Columbus, Ohio: Merrill Books.

SUYDAM, M. N. (1968). 'An instrument for evaluating experimental educational research', *J. Educ. Res.*, **61**, 5, 200-3.

VAN DALEN, D. B. (1958). 'A research check-list in education', *Educ. Admin. & Supervision*, **44**, 3, 174-81.

WANDT, E. (1965). *A Cross-section of Educational Research*. New York: David McKay.

BOOK REVIEWS

Objective Testing

by H. G. MACINTOSH and R. B. MORRISON. University of London Press, 1969. Price 90p.

A SMALL book (112 pages), 'designed primarily for the teacher, particularly the teacher in the secondary school', presents the simpler issues in objective testing which can easily be followed by the teacher and will certainly enlighten those with little or no background to objective testing.

The first chapter on *Objective Testing* contains a broad introduction but with some simplifications which might lead the reader to misconceptions about higher levels of testing. The chapter on *Types of Objective Items* gives a thorough view of the different types of questions that are available to the item writer with all the problems that he faces. The third section on *Constructing the Test* seems well done, though this reviewer wonders if the particular paragraph on breaking the rules was prudent in an introductory text. The *Item Analysis* chapter (4) is eminently readable, quite clearly produced and could be followed by the average teacher. One might debate the authors' emphasis on Facility, as the relative importance of Discrimination may be greater than they tend to credit. Chapter 5 on *Taking the Test* is excellent. It outlines the many real problems that are faced by children and teachers in taking and giving objective tests. It is commended to many of the professional item writers who want to get a feel of what it is like to give such tests in the actual 'nuts and bolts' classroom situation. Chapter 6 on *Scoring Tests* leans far too heavily on machine marking. Greater time on teacher marking procedures would have been preferable, in view of the target population of teachers. The final chapter on *Educational Objectives* should perhaps have started one stage before the authors indicate —*why* do we wish to test, before the question *what* do we wish to test, as the answer to the first question outlines the format of approach. Many of the simplifications suggested in this are good, as they are effective without distorting higher concepts. The example chosen for this chapter could have been improved to round off a good chapter.

Overall a book well worth reading by the practising teacher who wishes to understand the basic tenets of the objective test he is called upon to administer. It is valuable also for the teacher who wants to go a stage further and construct his own classroom progress tests in this form. Teachers who wish to go beyond that would, as the authors indicate, have to broaden their reading.

K. B. START

Basic Subjects for Slow Learners

by A. A. WILLIAMS. Methuen Educational, 1970. Price £2·40.

MANY, probably most, teachers of slow learners in junior and secondary schools, come to the task without previous experience or training in the teaching of the early stages of basic subjects. They acquire some basic information by attending short courses, by help from remedial services and by consulting books and articles. There was a time when *Backwardness in the Basic Subjects* was the main source but the choice of books is now wider and, while books are no substitute for adequate courses of in-service training, they do provide an important source of information. This book could well be used in conjunction with a course of lectures.

It is essentially a practical book based on the author's considerable experience as a teacher and head teacher in schools for educationally subnormal children and as tutor of a one-year course for teachers of handicapped children. Methods of teaching are explained in considerable detail so that the inexperienced teacher would obtain clear guidance on what steps to take, for example, in assessing and promoting reading readiness, in making up a child's own reading book, in teaching phonics and spelling, and in mathematics. The author has wisely not packed his text with all the different approaches, materials and problems which could be presented but has concentrated on communicating some of the main lines of approach, backed with discussion of the needs of slow learners, the aims of teaching them, and other ideas essential to understanding practice. There are however ample references to further reading and to sources of books and materials; four appendices contain other practically useful information.

Selection of topics is always difficult in a book of this kind. There is perhaps too little on developing fluency and comprehension skills in reading, but it is useful to have space given to a more detailed account of what information the teacher can get from reading tests—often overlooked—and to the teaching of phonics—a topic on which there is a great need for enlightenment. Mathematics receives a thorough discussion including methods of assessing readiness (a simple Piagetian procedure is described in the Appendix), methods of promoting readiness, developing number concepts and a useful discussion of social arithmetic which is so important for the slow learner. These are topics in which the author made original contributions in early days of re-thinking mathematics teaching with slow learners.

The book undoubtedly meets the practical needs of the teachers for whom it is intended—those teaching basic subjects for the first time—but it also has much to offer the more experienced teacher and provides a useful starting point for further study of particular issues. The suggestions for observation, inquiry or practical work given at the end of each chapter would be of assistance to tutors in colleges running courses in basic subjects for slow learners.

R. GULLIFORD

Educational Research in Britain (2)
edited by H. J. BUTCHER and H. B. PONT.
University of London Press. Price £3·25.

THIS is the second volume of a projected series of publications designed to serve as a guide to current and recent educational research. It is envisaged that further volumes will appear at intervals of two to three years. The contents include reviews of the work of the National Foundation for Educational Research, the Schools Council and the National Bureau for Co-operation in Child Care, together with summaries of recent and ongoing research in the following areas: the transfer from primary to secondary education; the teaching of mathematics; modern language teaching; religious education; curriculum model building; compensatory education; the arts-science dichotomy; delinquency; university teaching methods; medical education; education for business and management; and the economics of education. Some of the selected fields overlap with those that were treated in the first volume; others, notably those concerned with education for business and management and the economics of education, introduce relatively unfamiliar territory.

The editors would seem to have set themselves a formidable task in that it is their declared aim to serve the needs of both teachers and administrators who wish to be informed in a straightforward, non-technical fashion about the research findings that may be relevant to their day-to-day concerns, and also of post-graduate students who are about to embark on research projects of their own and who need a reasonably comprehensive coverage of the work that has been undertaken in their chosen field. The contributors to this volume can scarcely be blamed for the fact that, in the main, they have failed to satisfy fully either of these conflicting demands. The busy practitioner is not interested in the painstaking sifting of information that fascinates the researcher: indeed he wants an 'appreciation of the situation' approach that will serve as a guide to his decision-making and action. Most researchers feel acutely uncomfortable when they are invited to meet this kind of demand and such a service is perhaps better performed by a middle man—one who understands and sympathizes with the needs of the consumers but who is sufficiently well acquainted with the technicalities of research to be able to interpret it without undue distortion.

The needs of researchers and prospective researchers are not adequately met by the contributors to this volume because the articles are too brief to serve this purpose adequately and also because it has been decided, as a matter of policy, to restrict the bibliographies to those references that the authors choose to cite in their chapters. This cannot be expected to afford the kind of coverage required by someone who is proposing to undertake research on his own behalf. What would be more serviceable in this regard would be a full annotated bibliography with some ordering of priorities and perhaps an indication of the lines of inquiry that would seem, in the light of past experience, to be the most promising to follow.

What, in effect, is being proposed is that in future this series should bifurcate: one branch should aim to acquaint teachers and practitioners with the achievements of research; the other should consist of the kinds of review that would be found useful by those in the business, so to speak. One wonders too if there might not be some advantage in producing a British counterpart to the American Encyclopaedia of Educational Research. At the present rate of progress this series will not achieve a comparably comprehensive review for some 15 or 20 years. Perhaps this is an undertaking that the National Foundation for Educational Research might contemplate.

ALFRED YATES

Hightown Grammar

The school as a social system

C. LACEY

A detailed case-study of the progress of one class through a northern grammar school, emphasizing the relative lack of achievement by working-class children and the rejection of school values in favour of non-academic alternatives. *55s (£2.75) net*

Reshaping Physical Education

MARGARETE STREICHER

Edited and presented by Betty E. Strutt, this book, by one of the world's leading educationalists, shows how P.E. can be integrated with education as a whole and related to the complete development of the child.

Illustrated *36s (£1.80) net*

MANCHESTER UNIVERSITY PRESS

The Appraisal of Intelligence

A. W. HEIM

This important book by the well-known authority on intelligence testing has now been reprinted in a revised edition by the NFER. Dr. Heim discusses the feasibility of assessing 'intelligence' while its definition is a matter of controversy, and the importance in its development of environment and heredity is unclear. She describes the influences to be taken into account when devising and using psychological tests, and criticizes the factor analysis approach. In the last few chapters, Dr. Heim elaborates her own definition of intelligence and makes practical recommendations for further research.

Price 25s. (£1·25). By Post 26s. 6d.

NFER Publishing Division,
2 Jennings Buildings, Thames Ave.
Windsor, Berks., SL4 1QS.

Colleges of Education: Academic or Professional?

T. W. EASON

As compared with other branches of higher education, colleges of education are expected to fulfil two distinct though complementary functions: to provide for the students' personal education and development and to equip them professionally as teachers. The exact relationship between these two functions is a matter of controversy, and it is this area of controversy which is the subject of Mr. Eason's investigation. The results are to be presented in several parts; this, the first, looks at the colleges and their problems through the eyes of the Principals.

Mr. Eason's inquiry ranges over all aspects of college life, and presents a picture of the colleges which is bound to be of importance at this time when the training of teachers is being increasingly scrutinized.

10s. (50p) in UK only. By post 11s.

NFER Publishing Division

Curriculum Evaluation

STEPHEN WISEMAN and
DOUGLAS PIDGEON

Teachers and headteachers in this country have great freedom in the choice of what to teach. Curriculum changes take place in a somewhat haphazard manner, guided by educational fashion, individual enthusiasm or local pressure, often without proper evaluation. In this short and readable book, which is aimed at the ordinary teacher, the authors—both well-known experts in the field—advocate and explain a more objective approach to curriculum development.

It is hoped that this summary of new techniques will stimulate a more critical look at the syllabuses and curricula which form such a fundamental part of our school system, and will put a theoretical and practical tool into the hands of those who wish to re-organize curricula on a more objective basis.

10s. (50p) in UK only. By post 11s.

NFER Publishing Division

We've come a long way from copperplate copying!

to

Basic Books in Education

The series which gives the latest in education: the basic principles in *Background Books*, and specific practical applications in *Topic Books*.

Basic Books have provoked praise and appreciative comment from teachers and students alike. Because they are clearly and objectively written, because they are not too specialised, and because they are what teachers and student teachers really **want.**

Basic Books are full of information, but they try to leave the reader free to draw his or her own conclusions. They also include lists of suggestions for further reading, full bibliographies, glossaries and indexes.

Write for a descriptive brochure on *Basic Books in Education* to:

Macmillan Education

Houndmills Basingstoke Hampshire

Reconnaissance on an Educational Frontier

R. A. Hodgkin, Department of Educational Studies in the University of Oxford

128 pages boards, 19 919004 6 18s net; stiff card, 19 919005 4 9s net

The author is concerned with the process of learning and its influence upon the development of personality. In the compass of a very short book he probes deeply into the psychology and philosophy of education, as well as commenting shrewdly on many of its practical problems. For illumination of his subject, he returns to several unusual quarters—to cybernetics, ethnology, dreams and prayer. He draws on the works of several original thinkers whose ideas are rarely brought into discussions of education—Martin Buber, C. G. Jung, Susanne Langer, Donald MacKay, Michael Polanyi and others.

Other recent books

The Silent Social Revolution

An account of the expansion of public education in England and Wales 1895-1965

Second Edition 1969

G. A. N. Lowndes

412 pages, with 16 plates and 3 text-figures
boards, 19 836802 X 60s net
stiff card, 19 836804 6 30s net

The Teacher

E. B. Castle, Professor Emeritus of Education in the University of Hull

240 pages boards, 19 919002 X 25s net; stiff card, 19 919003 8 12s net

A short history of the teaching profession in Western Europe from biblical and classical times down to the present day.

OXFORD UNIVERSITY PRESS
Education Department, Oxford

NFER

COMPUTER SERVICE

The National Foundation for Educational Research has now installed its own computer—an IBM 1130.

We anticipate a certain amount of spare time in the next year or so, and are prepared to make the computer available to Educational Research Workers at favourable rates.

Card-punching will also be undertaken, at competitive rates.

Details

At present the capacity of the 1130 is limited—maximum size of matrix is 30 x 30. But for individual researchers who have no access to other computers and who wish, for example, to calculate tabulations, regression analysis, correlations, factor analysis, and analysis of variance within these limits, this service is of great value.

Rates

Computer: £15 per hour.

Data Processing: £20 per 1,000 cards.
Punched and Verified.

Specimen Costs:
Regression analysis of 8 variables on 40 subjects—£4: 15 tables from 2,600 subjects—£9.

Telephone Slough 28272, or write to
A. N. James,
NFER, The Mere, Upton Park, Slough, Bucks.

EDUCATIONAL REVIEW
Occasional Publication Number Four

TOWARDS EVALUATION

Some Thoughts on Tests and Teacher Education
by
E. STONES

with contributions by H. Checketts, G. Davies, K. Horton, P. Mauger, S. Morris, R. Ogilvie, P. J. Tansey, *and a foreword by* P. Chambers.

The efficacy and relevance of present examination practices at all levels are likely to be increasingly questioned as the eleven-plus was questioned a few years ago. The contributors do not seek to add to the critical literature on the subject but attempt to make positive suggestions aimed at integrating evaluative procedures with the teaching/learning process.

Obtainable from the Administrative Assistant, *Educational Review*, University of Birmingham, School of Education, PO Box 363, Birmingham 15

How Teachers Plan Their Courses

P. H. TAYLOR

The planning of courses is undoubtedly one of the most important parts of the teaching process. About how this planning is done, what criteria are employed, what priorities followed, and how effectiveness is judged, very little is known. Such knowledge is of crucial value at a time of educational change, when teachers are being called on to develop new approaches. In this very readable report, Professor Taylor makes a substantial pioneering contribution to our knowledge of this area.

Summary transcripts of the teachers' discussions form a lively section of the book. The teachers discuss their aims and how they see the functions of examinations and syllabuses, what they expect of their pupils and the relevance of their subjects to the children's lives.

30s. (£1·50) in UK only. By post 31s. 6d.

NFER Publishing Division

Problems of Overseas Students and Nurses

AMYA SEN

Little is known about the progress made by the thousands of overseas students in this country, but their studies may be of crucial importance to their own and their home countries' development.

Dr. Sen has studied a large sample of students and nurses in colleges of education, universities, hospitals, specialist nursing colleges and many other kinds of institution, and has provided a clear factual picture of the nature of their difficulties. Also included here are a report on the sample's English proficiency, a follow-up of their performance and the author's recommendations for reducing the severe handicaps under which these foreign and Commonwealth students are shown sometimes to be labouring.

£2·50 in UK only. By post £2·60.

NFER Publishing Division

Comprehensive Education in Action

edited by T. G. MONKS

This is a unique book on comprehensive education—unique not only because it reports research into some hitherto uncharted areas of school life but also because of the thoroughness of much of the work. It is particularly welcome at this time of change and flux in secondary education.

Six different aspects of the life and work of teachers and pupils, chosen for their pertinence to a developing system of non-selective secondary education, have been investigated. These are: school administration; curriculum and welfare; attainments; friendships; extra-curricular activities and contacts between the school and the community.

£2·50 in UK only. By post £2·60.

NFER Publishing Division

The British Journal of Educational Psychology

Vol.40, Part 3 *Editor:* Professor J. D. NISBET November 1970

E. Stones, Birmingham: Verbal labelling and concept formation in primary school children.

P. H. Taylor, Birmingham: An exploratory study of teachers' perceptions of the process of planning courses.

E. Fischbein, Ileana Pampu and I. Minzat, Bucharest: Effects of age and instruction on combinatory ability in children.

H. E. Flynn and R. G. Munro, New Zealand: Evaluation of a curriculum.

M. K. Pafford, Keele: Creative activities and 'peak' experiences.

R. I. Brown and L. Semple, Canada and N. Ireland: Effects of unfamiliarity on the overt verbalisation and perceptual motor behaviour of nursery school children.

L. Cohen, Bradford: The head teacher role: some differing emphasis of male and female head teachers.

A. H. Mehryar and R. Shapurian, Iran: The application of a high-grade intelligence scale in Iran.

J. Ward, Manchester: On the concept of criterion-referenced measurement.

M. M. Tatsuoka and R. B. Cattell, Illinois: Linear equations for estimating a person's occupational adjustment, based on information on occupational profiles.

Research Notes by D. Jehu, C. J. Picton and S. Futcher, Leicester; T. W. Field, N.S.W., and M. E. Poole, Australia; E. R. Brody, U.S.A.; D. S. Finlayson, Liverpool; J. McFie and J. A. Thompson, London.

Theses Abstracts and Book Reviews

Subscription £4·00 *a year or* £1·50 *per part to:*
THE MANAGER, B.J.E.P. DEPARTMENT, ASSOCIATED BOOK PUBLISHERS LTD.,
NORTH WAY, ANDOVER, HANTS.

Dillon's sell Books on Education

Comprehensive catalogues available on Education, and on Psychology

Telephone, call in, or write for all books on the theory and practice of Education

Dillon's University Bookshop

1 Malet Street
London WC1E 7JB
01-636 1577

EDUCATIONAL MATERIAL IN MICROFORM

BRITISH JOURNAL OF PSYCHOLOGY 1931-1961
£90 Microfiche

DURHAM RESEARCH REVIEW
The research publication of the Institutes of Education at the Universities of Durham and Newcastle-upon-Tyne
Out of print issues £4.50. Microfiche

Forthcoming publications for 1971 include:—
THE SCHOOL SCIENCE REVIEW. The Journal of the Associations for Science Education, published from 1919. Microfiche

EDUCATION IN SCIENCE. The Bulletin of the A.S.E. Microfiche

Miscellaneous source material for the history of education. Selected Education Acts from 1870-1918; Reports of the Schools Inquiry Commission 1867-8; Reports on the Elementary and Secondary Education Acts 1886 and 1895 (The Cross and Bryce Commissions); Newcastle Commission of 1861 and the Reports on the Durham University Act, and on Oxford and Cambridge (1852 and 1873)

For full lists and details write to:—

MICRO METHODS LIMITED
East Ardsley, Wakefield, Yorkshire

401
Edu 4.11.71
Lib

EDUCATIONAL RESEARCH

**A review for teachers
and all concerned with
progress in education**

**Published by the
National Foundation for
Educational Research
in England and Wales**

**Volume 13 No 3
June 1971**

Forthcoming Issues

THE November issue of *Educational Research* will contain an article by Professor Arthur Jensen of the Institute of Human Learning in the University of California, entitled 'Do Schools Cheat Minority Children?' In it, Professor Jensen offers evidence that when certain ability and home background factors are held constant there is no appreciable difference in the scholastic achievements of pupils of different ethnic groups. But he discovered marked differences in the overall levels and patterns of ability of negro, Mexican-American and white children in his survey, and suggests that the implication is that different teaching approaches are needed to maximize the achievement of children in different ethnic groups.

In view of the interest which the article is expected to stimulate, comments on it by Sir Cyril Burt, Professor H. J. Butcher, Professor H. J. Eysenck, Professor John Nisbet and Professor Philip E. Vernon, will be published in the February 1972 issue of the journal.

© 1971 *National Foundation for Educational Research in England and Wales*

Published by the National Foundation for Educational Research in England and Wales
and Printed by King, Thorne & Stace Ltd., Kingthorne House, School Road, Hove, Sussex BN3 5JE

STUDENTS' EXPERIENCE OF THICK SANDWICH COURSES

ALAN SMITHERS *School of Research in Education, University of Bradford*

More and more higher education courses in this country are being organized on the sandwich principle of alternate periods of academic study and industrial training. But the educational implications of such courses have been comparatively little investigated. From a survey of the existing literature and an empirical study of thick sandwich courses at the University of Bradford, it is argued that the ideal of an integrated education in two environments is not being attained at present, and may, in fact, be unattainable. There are undoubted benefits, both educational and political, which accrue from such courses, but these must be set against the evident disadvantages. The time is ripe for a re-appraisal of the role of sandwich courses.

One of the features of higher education in this country in recent years has been the burgeoning of sandwich courses. Such courses, with their alternate periods of college education and industrial experience, have a long history. The first, according to Houghton (1966), was at University College, Bristol in 1878, but it is only with their adoption by the National Council for Technological Awards that they have become at all common.

The NCTA was established in 1955, according to its deed, to 'create and administer technological awards of high standing having a national currency and available to students in technical colleges who successfully complete courses approved by the Council'. The award which it created was the Diploma in Technology (Dip. Tech.). The Council took its brief literally and decided that it was for the colleges themselves to develop and examine courses. It did, however, lay down certain conditions, one of which was that courses should incorporate at least one year of integrated industrial training.

The impact of the NCTA on the technical colleges has recently been discussed by Robinson (1968) and by Burgess and Pratt (1970). For some colleges the Diploma in Technology represented a great opportunity, particularly for those with experience of preparing students for external degrees of the University of London. The prospect of engaging in work of honours degree standard while retaining responsibility for content and examinations led to an impressive number of courses being submitted to the NCTA for approval. Most, but by no means all, of these came from the recently established colleges of advanced technology. And, while many of the applications were in the fields of engineering and related technologies, the traditional sciences were also refurbished on the sandwich pattern and became, for example, applied biology, industrial chemistry and applicable mathematics.

To the technical colleges with their long tradition of job-rated education the sandwich course seemed to be a natural development of self-evident value. But the precise function of industrial training has always been a source of confusion. Indeed, although some broad definitions had previously been put forward, it was not until 1964, just before it was superseded by the CNNA, that the NCTA made the objectives

---

Acknowledgement

The author gratefully acknowledges the advice and encouragement of Professor Frank Musgrove, who initiated the longitudinal study of which this report forms part.

explicit. A report of its Industrial Training Panel (NCTA, 1964) noted that 'the purpose of industrial training as an integral part of courses leading to the Diploma in Technology is far from clear in the minds of either college or industrial staff. *This is not surprising in view of the uncertainty which has existed within the Council.*' (my italics). In seeking to remedy the situation, it specified three main purposes: (i) 'the training should illustrate the application in practice of the scientific principles which the student has been taught in college . . . and should provide him with experience and knowledge of modern plants and processes'; (ii) 'practice should be given in the solution of . . . problems in the form in which they are met in industry', and (iii) 'the training should make the student aware of the social, economic and administrative considerations which influence the working of an industrial organization.

This statement has, however, done little to dispel the confusion surrounding sandwich courses. Wide differences have been found in the value attached to industrial training by industrialists, students and staff. In an early study among diplomates in technology, Heywood (1967) found that the majority thought that industrial training was intended to give them some idea of what jobs were available. Staff, on the other hand, saw it mainly as an opportunity of learning how to apply the scientific method to industrial problems and as a general introduction to industry. Musgrove and Smithers (1969) also found that students expected industrial training to provide them with information about career opportunities, and, in prospect, they also had high hopes that it would give relevance to academic studies, help develop confidence in dealing with all kinds of people and give an insight into how firms work. But later, looking back over their experiences, they had doubts, particularly about the relationship with university studies.

Industrialists, unlike university staff, do not appear to see industrial training primarily in terms of the application of theory to practice. In a survey among some 300 personnel, production and research staff in a wide variety of industries, Batcock and Musgrove (1970) found that the development of a realistic attitude to industry, and the experience gained in a variety of industrial environments were seen as the main advantages. The disadvantages most often mentioned were the disruption of students' academic studies and interference with student life. There were also fears that the industrial training period might be wasted.

The NCTA did not prescribe the form in which industrial training was to be incorporated into courses and, in practice, a number of variants have evolved. The two main forms are: the 'thin sandwich', in which the student spends alternate periods of six months in the university and in industry; and the 'thick sandwich', where the first two years are spent in the university, the next in industry, and the fourth and final year in the university. Both have their passionate advocates. The advantages claimed are often in the same terms. Thus the thin sandwich is said to promote integration because it gives a better balance of work and study; the thick, because the level of work possible in the third year is more compatible with university studies. Both are claimed to be the less disruptive: the thin sandwich because the student spends six months of each year in the university; the thick, because it permits students to spend three whole academic years in the university (but with a gap of some 15 months between the second and third years). The thin sandwich is claimed to provide a greater variety of experience and to enable students to consider a wider range of jobs; but to supporters of thick sandwiches much of this experience is inevitably low-level, routine work which might well unnecessarily put students off possible future careers. And there are many other arguments that can be adduced. However, in spite of all the controversy, there have been few systematic studies of the relative merits of thick and thin sandwich courses.

Most of the published studies have been concerned with thin sandwich courses. And all, to some extent, convey a sense of let-down (Jahoda, 1963; Marris, 1964; Heward, Mash and Heywood, 1968; Musgrove and Smithers, 1969). In contrast, a study among graduates of a thick sandwich course—in applied biology—showed that considerable value was seen in industrial experience, particularly as a period of scientific training (Smithers and Hambler, 1969). Since the thin sandwich studies were mainly carried out among engineering students, this difference could equally well be associated with subject as with the structure of the sandwich course.

The longitudinal study reported by Musgrove and Smithers (1969) is part of a much wider study embracing all students who entered the University of Bradford in 1966. The sample included students of engineering and science on thick sandwich courses as well as the engineering students on thin sandwich courses previously described. Drawing on data from the study, it is possible to see what students expect industrial training to be like and how they react to it. It is also possible to see if students in different fields of study and on different types of sandwich course react differently. This paper examines the data from these points of view.

The nature of the inquiry

In an attempt to discover what students liked and disliked about industrial training, Professor Frank Musgrove conducted, during the session 1965-66, a series of interviews at the Bradford CAT with students who were either on industrial training or had recently returned from it. The interviews yielded a number of statements about industrial training and the 30 which discriminated best between those who regarded the experience favourably and those who regarded it less favourably were used to construct a Likert-type attitude-to-industrial training scale (Musgrove, 1968).

This was given to all students on sandwich courses who entered the recently established University in October 1966. The students were asked to express their agreement/disagreement with each item on a five-point scale, and responses were scored from 1 (favourable) to 5 (unfavourable). The range of the whole scale is therefore 30-150; the *higher* the score, the more *unfavourable* the attitude.

The scale has been developed in two forms: (i) a prospective version, e.g. 'industrial experience will give me a good chance to see how my theoretical knowledge can be applied in practice', and (ii) a retrospective version, e.g. 'industrial experience gave me a good chance to see how my theoretical knowlege works in practice.'

Besides being questioned on entry, students were followed up at various times during their courses. Students on thick sandwich courses—students of civil engineering, textile technology and applied biology—were followed up on two occasions: (i) towards the end of their second academic session (June 1968), and (ii) at the end of the industrial training period (September 1969).

The present analysis is confined to male students. On entry, 126 students or 93 per cent of the sample completed the questionnaire. In June 1968, 79 or 75 per cent of those who had progressed to the end of the second year (29 had not) did so again, and in September 1969 this percentage was maintained (two students did not respond and three 'dropped out', but six others completed the questionnaire in both 1968 and 1969).

After industrial training students were also asked to complete three other measures describing their experience. Using Jahoda's (1963) typology, they were asked to say which of the following applied to their period in industry: (i) it was spent in a training school, (ii) it involved moving from department to department for different experience, (iii) it was spent on a project, (iv) it was production work at the technician level, (v) it was production work at the workman level. They were also asked to indicate on a five-point scale—'all', 'majority', 'about half', 'minority', 'none'—the proportion of time they had spent on: (i) skilled work, (ii) semi-skilled work and (iii) observation. And further, they were asked to indicate the percentage of time they had spent with 'management', 'professional, technical staff', 'skilled workers' and 'unskilled workers'.

Results

Students' changing attitudes to industrial training are shown in Table 1. On entry, students in all three schools were very favourably inclined towards industrial training, although the biologists were significantly less so than the civil engineers ($t=2{\cdot}11$, $P>0{\cdot}05$). During two years in the University the attitude of all groups deteriorated. But industrial training itself appeared to affect the biologists and the technologists differently. Among the technologists the less favourable attitudes to industrial training developed during the intra-mural period were confirmed, but among the biologists a marked re-appraisal took place. And from being the least favourably inclined at the outset, they were ultimately the most enthusiastic.

The 30 items comprising the attitude scale touch on many facets of industrial training. When the students' reactions were examined in detail, it was found that the change to less favourable ratings among the civil engineers and textile technologists occurred mainly on 13 items. What is striking, as can be seen from Table 2, is that these items are nearly all concerned with intellectual development.

At the outset, students expected industrial training to give them an opportunity of applying theory in practice, expected to learn about the latest developments in their fields and were confident that industrial training would not disrupt their studies. But in the event they were disappointed. Neither did they appear to get the 'helpful instruction and guidance' that they were anticipating.

Relatively few items concerned with social and organizational learning were similarly re-appraised. But while at university the students came to doubt that industrial experience would provide them with a good opportunity to see what jobs are going and this was confirmed by actual experience. There was also some tendency for the students to see themselves as cheap labour.

On most social and organizational items, however, initial ratings were maintained or improved. On four items ratings improved. The technologists (civil engineers and textile technologists taken together) were surprised at the extent to which they were able to work on their own and they were surprised to find their 'bosses' so friendly and approachable. Fears that their pay would be resented by workmen and that they would be little more than 'dogsbodies' to the experienced and highly qualified were not borne out in practice.

The initial strong belief among the technologists that they would have the edge over graduates of conventional courses in obtaining employment was confirmed. They also valued industrial training as a time for learning how a firm works and for gaining some insight into the outlooks of management and workmen.

The expectation that industrial training would help develop self-confidence in dealing with all kinds of people was borne out among the civil engineers, but not among the textile technologists. But both groups were generally satisfied with industrial training as a social experience; both reported making a lot of new friends and neither was lonely. The belief that industrial training would help develop self-confidence in tackling technical problems was largely sustained.

Among the biologists the pattern of changes was somewhat different; during the intra-mural period there was a general shift towards less favourable ratings, but during industrial training this shift was more than reversed.

Table 1: Attitudes to industrial training

	On Entry		Change					
			During Two Academic Sessions (1966-68)			During Year in Industry (1968-69)		
	M	SD	M	t*	P	M	t*	P
Civil Engineering (N = 45)	60·2	8·6	+6·8 (deterioration)	4·32	0·01	0·0†	0·0	n.s.
Textile Technology (N = 18)	64·1	10·2	+3·4 (deterioration)	2·11	0·05	+5·0 (deterioration)	1·52	n.s.
Applied Biology (N = 16)	66·4	10·6	+9·9 (deterioration)	2·63	0·05	—12·7‡ (improvement)	5·44	0·01

*correlated data
†N = 47
‡N = 15

Table 2: Change to less favourable ratings among students of civil engineering and textile technology

	MEAN SCALE SCORES					
	CIVIL ENGINEERING			TEXTILES		
A. *Items Relating to Intellectual Development*	*On Entry* (1966)	*Change College* (1966-68)	*Change Industry* (1968-69)	*On Entry* (1966)	*Change College* (1966-68)	*Change Industry* (1968-69)
Industrial experience gave me a good chance to see how my theoretical knowledge works in practice	1·53	**+0·31**	**+0·85**	1·83	0·00	**+0·78**
Much of what I learned in theory became more real and had more meaning when I saw it in practice in industry	1·51	**+0·49**	**+0·55**	1·88	—0·06	**+0·78**
I added a good deal to my scientific knowledge and understanding when I was in industry	2·11	**+0·86**	+0·09	2·05	**+0·83**	**+0·22**
During my period of industrial practice I learned about the latest practical developments and advances in my subject	2·37	**+0·65**	**+0·34**	2·66	—0·16	+0·33
I became more self-confident in tackling scientific problems	1·84	**+0·40**	+0·13	2·00	+0·16	+0·39
During my industrial practice I was given very efficient and helpful instruction and guidance for the work I did	1·84	+0·22	**+0·45**	2·22	0·00	**+0·77**
The time I spent in industry was an unwelcome distraction from my studies*	1·57	**+0·36**	+0·11	1·66	—0·11	**+1·11**
During my time in industry I forgot a good deal of what I had been learning before*	2·44	**+1·22**	+0·15	2·16	**+0·56**	+0·34
In industry I was given a lot of low-level work which was of little or no help to my college studies*	2·48	**+0·40**	+0·11	2·61	+0·05	—0·11
B. *Social and Organizational Items*						
Industrial experience gave me an excellent opportunity to discover what jobs were going and what I'm most suited for	1·77	**+1·12**	+0·08	1·66	**+0·72**	—0·05
During my time in industry I was simply a form of cheap labour*	1·77	**+0·80**	+0·02	2·27	+0·28	+0·33
The time I spent in industry was simply time spent moping around*	1·15	**+0·36**	+0·13	1·50	+0·16	+0·55
I had a strong sense of purpose because I felt profits depended to some extent on how efficient I was	2·51	+0·09	+0·25	2·77	+0·34	**+0·83**

*Scoring on these negatively worded items has been reversed
Significant changes are shown in bold type

The items relating to intellectual development appear to fall into two groups. Like the technologists, the biologists were confirmed in their doubts about the integration of intramural and industrial periods at the level of applying theory to practice ('good chance to see how my theoretical knowledge works in practice', 'theory became more real and had more meaning when I saw it in practice in industry'). On the other hand, at the level of developing scientific self-confidence and adding to scientific knowledge industrial experience was valued. Fears that it would be a distraction from college studies proved unfounded.

Like the civil engineers, the biologists valued industrial training as a time for developing self-confidence in dealing with people, but they did not see it as a time for learning how a firm works nor for learning about the attitudes of either management or workmen. Neither did they expect to have the edge on graduates of conventional courses.

The different reactions of the biologists and technologists are probably related to the different nature of their industrial training experiences. These are described in terms of Jahoda's (1963)

Table 3: Types of industrial experience

COURSE		MOVING FROM DEPT. TO DEPT. %	PROJECT %	PRODUCTION WORK %
Civil Engineering	(N = 47)	34·1	17·0	49·0
Textiles	(N = 18)	38·9	33·3	27·8
Applied Biology	(N = 15)	20·0	80·0	nil

typology in Table 3. The biologists were mainly engaged in project work whereas this was true for relatively few of the civil engineers ($\chi^2=17{\cdot}9$, d.f.$=1$, $P>0{\cdot}001$) or textile technologists ($\chi^2=5{\cdot}4$, d.f.$=1$, $P>0{\cdot}025$).

Biologists mainly spend their industrial year in governmental laboratories where they join a research group. Frequently, the student is given his own problem to work on and quite often this leads to publication. The student lives and works as a scientist, and with scientists, for a year.

Industrial training for civil engineers and textile technologists means something very different. Civil engineers usually join either contractors where they are mainly engaged in supervising site work (and they generally have a considerable degree of responsibility) or a firm of consultants where they are mainly engaged in design. Alternatively, they may join a local authority where they commonly move from department to department. It is less usual for civil engineers to be given a project and, where they are, it is more accurately described as a feasibility study than research.

Textiles students usually join a large textiles firm where they may move from department to department gaining experience in sales, costing, time and motion study, supervising production work etc. But for some students, work on the production side, including running and servicing the equipment, comes to dominate the experience. Where projects are given to students they are usually feasibility studies such as the evaluation of new machinery or sorting out some specific operating problem.

In Table 4 changing attitudes to industrial training are shown according to the dominant form of experience. It can be seen that those on project work, in spite of the different meanings attached to this term, generally developed more favourable attitudes, even where the group as a whole became less favourably disposed.

Changing attitudes were also related to the level of skill seen to be involved in the work. Of the biologists and civil engineers, 87 per cent and 80 per cent respectively classed their work as skilled, but only 33 per cent of the textile technologists did so. Those textiles students who saw their work as skilled (mainly those on project work) tended to develop more favourable attitudes to industrial training ($-5{\cdot}4$, $t=1{\cdot}57$), but among those who saw their work as semi-skilled there was significant deterioration ($+14{\cdot}5$, $t=3{\cdot}68$, $P>0{\cdot}01$).

Students in the different fields also reported spending different lengths of time with personnel

Table 4: Changes in attitude during industrial training by type of experience

	ATTITUDE SCALE UNITS		
Course	*Moving from Dept. to Dept.*	*Project*	*Production Work*
Civil Engineering	+0·4	—4·0 (improvement)	+1·0
Textile Technology	+7·4 (deterioration)	—4·5 (improvement)	+13·2* (deterioration)
Applied Biology	—8·3 (improvement)	—13·7*** (improvement)	nil

By 't'-test for correlated data: *significant beyond 5% level; ***significant beyond 0·1% level at different levels. The biologists reported spending on average 64 per cent of their time with 'professional, technical workers' and only 5·3 per cent of their time with 'unskilled workers'. For the civil engineers the proportions were 55·5 per cent and 15·1 per cent respectively, but for the textiles students they were 39·4 per cent and 23·3 per cent. But this was not so strongly related to attitude change as the level of skill seen to be involved.

Discussion

The views of technology students are unambiguous; for them sandwich courses are not integrated courses. While they recognize the considerable benefits of industrial training, they do not accept that it bears much relation to academic studies. This is as true of engineers on thin sandwich courses (Musgrove and Smithers, 1969) as it is of the thick sandwich course students in the present sample.

Neither are these views peculiar to Bradford. Marris (1964), analysing a survey at the Northampton CAT (now The City University), noted a tendency for the industrial period to become 'a parallel education, scarcely integrated with the immediate task of qualifying for a diploma.' In Jahoda's (1963) study at Brunel only 54 per cent of her sample saw 'some relation' between college and industrial periods. Reviewing the impact of the NCTA on the development of the CATs, Burgess and Pratt (1970) conclude that 'educationally, the NCTA never managed to solve the problem of integrating the college and industrial periods.'

Even the biologists in the present survey who were generally so enthusiastic about industrial training did not see it as a time for putting theory into practice. Rather, as Smithers and Hambler (1969) have also reported, the relationship is seen at the general level of learning to be a scientist.

The largely favourable reactions of the biologists contrast with the less favourable reactions of the technologists, and this represents something of a paradox. For sandwich courses were really invented with students of engineering in mind and got carried over into the sciences in the general application of policy. Industrial training does not have the same apparent relevance to the sciences as it does to engineering, and this is reflected in initial attitudes to the experience. Nevertheless, in the event, it was the scientists who were pleasantly surprised, and the engineers who were disappointed.

This difference has also emerged in other studies. Heward *et al.* (1968), in a survey among final year students at five CATs, found that all the biologists were 'satisfied' with industrial training compared to only 21 per cent of the electrical engineers and 31 per cent of the mechanical engineers. Similarly, in Jahoda's (1963) study, appreciably more scientists reported a good experience than engineers.

Why there should be this difference is not clear. But the very absence of a directly related industry may well be an important factor. For biologists, and presumably other scientists, industrial training is in many ways a continuation of their university experience. Working as they often do in laboratories as members of research groups, they enjoy something comparable to an MSc year incorporated into their undergraduate studies. They can see what they personally are achieving.

On the other hand, when technologists go out into industry they are subordinated to its goals: production and profit. And, while they are probably learning a good deal, neither this nor their personal contribution to the firm is readily apparent. Where this can be identified, as with the students on projects, the experience is usually evaluated favourably (Table 4; Jahoda, 1963).

The reactions of the engineering students on the thick sandwich course in the present study are remarkably close to those of the students on thin sandwich courses described by Musgrove and Smithers (1969). Neither group saw industrial training as a time for applying theory to practice and neither saw it as a good opportunity for finding out about career opportunities; both were concerned at the disruption of university studies. The response of the thin sandwich students is somewhat more pronounced with a mean attitude change after one year in industry (two periods) of 18 units compared to seven units among the civil engineers and eight among the textile technologists). But the striking similarities suggest that the thick/thin controversy is much less important than the question of the effectiveness of sandwich courses in general.

The findings reported and collated in the present study cast serious doubt on whether the first, perhaps the crucial objective, for industrial training formulated by the NCTA—that it 'should illustrate the application in practice of the scientific principles which the student has been taught in college'—is being attained. It is on this objective that the justification for alternating periods of industrial training and college study rests. The other benefits of industrial experience—seeing modern plant in operation, learning how firms work and about the people in them, developing social maturity, trying out a future career and so on—could all conceivably be got from a period in industry before going to university. The research experience which the biologists found so valuable could equally well be placed at the end of the course, as it traditionally is in the MSc year. In the study by Heward *et al*. (1968) more than three-quarters of those who *were satisfied* with industrial training would have preferred it to have come before going up to university.

Should, then, the acknowledged benefits of complementary industrial training be set aside and some other arrangement tried? It could well be so. It is doubtful if integration as originally envisaged can be attained. It is something which the colleges have been earnestly trying to do for more than a decade, but they have been defeated by the very diversity of industrial experience. It is this diversity of experience and the development of a realistic attitude to industry which industrialists find so valuable. Very few, in Batcock's and Musgrove's (1970) study, attached importance to the relationship with university studies.

But there are two important reasons for retaining sandwich courses, one educational, the other political, which may outweigh these considerations. Educationally, in Marris's (1964) words, they 'meet the need of all students to overcome their isolation from society at large and test the validity of their education in its ultimate setting . . . to have worked only before they entered on their courses may not provide them with enough experience to give their developing interests a point of reference outside the student community'. Politically, they facilitate a higher education which is responsive to social and industrial needs.

At all events, sandwich courses should be presented in the right way. Almost without exception prospectuses lay stress on the integration of theory and practice. And, as we have seen, this leads to almost inevitable disappointment. Students have found much to appreciate in industrial training; it is its strengths which should be publicized.

References

Batcock, A. and Musgrove, F. (1970). 'Industry's evaluation of the sandwich course'. In *Sandwich Course Studies* (ed. F. Musgrove). Bradford: The University (duplicated).

Burgess, T. and Pratt, J. (1970). *Policy and Practice: The Colleges of Advanced Technology*. London: Allen Lane, The Penguin Press.

Heward, C., Mash, V. and Heywood, J. (1968). 'Student reaction to sandwich courses for the Diploma in Technology (Dip. Tech.)'. *Bull. Mech. Engng. Educ.*, **7**, 253-69.

Heywood, J. (1967). 'The effectiveness of undergraduate (Dip. Tech.) industrial training'. *Int. J. Elect. Engng. Educ.*, **5**, 281-89.

Houghton, H. L. (1966). 'The training aspect of sandwich courses'. *Technical Education and Industrial Training*, **8**, 167-71.

Jahoda, M. (1963). *The Education of Technologists*. London: Tavistock.

Marris, P. (1964). *The Experience of Higher Education*. London: Routledge and Kegan Paul.

Musgrove, F. (1968). 'Experience of bureaucracy and attitudes to industrial training'. *Irish J. Educ.*, **1**, 54-61.

Musgrove, F. and Smithers, A. G. (1969). 'Attitudes to industrial training of students on sandwich courses'. *Int. J. Educ. Sci.*, **3**, 117-124.

National Council for Technological Awards. (1964). *Report of The Council's Industrial Training Panel on the Training of Engineering Students Following Courses Leading to the Diploma in Technology*. London: NCTA.

Robinson, E. (1968). *The New Polytechnics*. London: Cornmarket Press (and also Penguin).

Smithers, A. G. and Hambler, D. J. (1969). 'The bearing of the sandwich course on the university education of biologists'. *J. Biol. Educ.*, **3**, 209-220.

SOCIAL CONTEXT OF IMMIGRANT PUPILS LEARNING ENGLISH

S. M. DUROJAIYE *Makerere University, Uganda*

INFORMATION on five areas of social activity possibly related to English language learning was collected from three groups of secondary school pupils (Asian, West Indian and English). Results indicate considerable group differences in the use of school and public libraries, out-of-school activities, out-group choice of friends, job aspirations and parental encouragement. Some factors would seem from the results to facilitate the English language learning of the Asian group.

A factor which cannot be ignored if we are to fully understand the complexity of the English language learning situation for immigrant pupils is the social context in which such learning takes place. What is there in the social environment of the immigrant pupil that may assist or hinder his English language learning?

Writing on the nature of bilingualism Weinreich (1963) states that 'It is in a broad psychological and socio-cultural setting that language contact can best be understood'. This would apply particularly to the situation of immigrant pupils in our schools, where language contact is only one aspect of the cultural upheaval of immigration. The emphasis on use of language in a variety of situations, opportunities provided for enlarging vocabulary, quality of language models available, opportunities provided for learning inside and outside the home (excluding school), and the availability of books, periodicals and library facilities (Bloom 1964), will be of importance in the language learning of immigrant pupils.

Bernstein (1961) distinguished two main forms of language, which he refers to as 'public' and 'formal', and showed that while middle-class people can understand and use public language as well as formal language, lower-class people are more or less restricted to public language.

The social environment of immigrant pupils may encourage the acquisition of 'public' (or 'restricted') language since they are learning a second language in a context where such a code is common (working-class industrial area). It will be informative to see how far their social patterns conform to those of their peers. Similarly, Smilansky (1968) shows the link between social environment and language ability in her work in Israel with the children of immigrants from various Middle Eastern and North African countries. Miller (1951) states: 'In addition to the information we intend to convey, our speech inadvertently helps the listener guess our nationality, sex, age, region of country, social background and education'.

It will be of interest to see how far the social backgrounds of the different groups in this study are comparable, and to predict the likely effect of this on their language learning. Sanford (1942) states that 'there is an intimate relation between the speech of an individual and his broader social adjustments'. Many researchers (Jones, 1965) have suggested that differences attributed to bilingualism may, in fact, be in part attributable to sociological differences. Alleyne (1962) found evidence that bilingual deficiency was due to lack of involvement in English life and culture. Native bilinguals were not significantly inferior to their paired monolinguals. In this respect we might consider immigrant pupils in the light of work done on culturally disadvantaged children. Both Asian immigrant pupils who have to learn a second language, and all other groups in this study, who are from relatively poor home backgrounds, may be regarded as culturally disadvantaged in England. Group differences in social environment may arise, however, from the widely different backgrounds of the immigrant pupils before coming to this country. These differences will be of particular interest in relation to language learning.

Procedure

Information was collected from three groups of secondary school pupils from one school in a working-class district of Manchester. The school is newly built and well equipped, with 40 per cent immigrant pupils and a lively staff who show appreciation of the problems inherent in such a heterogeneous intake of pupils. Every use is made of lessons on subjects such as History and Geography and current affairs discussions to help pupils in their adjustment to one another and in their understanding of the wider issues of immigration and integration. An English language specialist is a full-time member of the staff and provides intensive instruction in English language for those pupils with little or no knowledge of English. Such instruction occupies short periods only and for most of the day immigrant pupils are in normal classes.

From the fourth and fifth years in this school, teachers gave indication of those pupils whose English language ability was considered 'satisfactory' (speaking clearly and being readily understandable). From 180 pupils in the 14–15-year age group, only those whose performance on progressive matrices administered by the investigator placed them in the average or above average ability range were included (i.e. grade 3 and above). The socio-economic status of the breadwinner in England was also controlled, and was limited to the skilled, semi-skilled and unskilled manual range (Hall-Jones Scale, Classes V, VI and VII). A minimum length of stay in England of one year and maximum of five years were the limits set for the immigrant pupils. Only those Indian and Pakistani pupils whose mothers spoke very little or no English were included.

With these controlled factors operating, of the 180 pupils tested and investigated three groups of 20 pupils each were finally selected. The first consisted of 20 West Indian pupils, the second of 20 Indian and Pakistani pupils, and the third of 20 of their English classmates. Recorded, individual interviews were the source of information on the following points:

1. Availability and use made of the media (radio, television, cinema, newspapers, books).
2. Choice of friends.
3. Out-of-school activities.
4. Job aspirations and degree of parental encouragement and interest.
5. For the Indian and Pakistani group, parental and sibling knowledge of English and language most used at home.

Pupils are the sole source of information except where observation and teachers' confirmation could be used. This was the case for choice of friends in school and use made of school library and youth clubs.

Results

Media

Table 1 shows the use made of the various media by the three groups of pupils.

Table 1: Percentage of pupils making use of media

	West Indian Pupils				Indian & Pakistani Pupils				English Pupils			
Media	*Never Used* %	*Seldom Used* %	*Often Used* %	*Very Often Used* %	*Never Used* %	*Seldom Used* %	*Often Used* %	*Very Often Used* %	*Never Used* %	*Seldom Used* %	*Often Used* %	*Very Often Used* %
Television	5	5	40	50	0	15	51	34	10	20	40	30
Radio	10	20	60	10	10	40	50	0	5	25	55	15
Newspaper	5	50	45	—	10	15	75	—	5	20	75	—
School Library	30	20	25	25	35	5	20	40	40	20	25	15
Public Library	15	40	25	20	15	15	10	60	80	5	5	10
Cinema	25	30	30	15	5	45	37	13	—	35	25	40

Several points of interest arose in the detailed information given by pupils in this section of the interview. The first of these is the type of newspaper read and the possible need to define 'read' in this context. From information given, it seems that to 'read' a newspaper can mean to skim through news items for information or simply to glance at the classified advertisements and cartoons. The latter was particularly the case for the English pupils.

The choice of newspaper among the three groups is of interest. 100 per cent of both West Indian and English groups have available at home only popular newspapers (the '*Daily Mirror*', '*The News of the World*' were most often mentioned), whereas in the Indian and Pakistani group, 40 per cent read the 'quality' press ('*The Guardian*', '*The Times*', '*The Observer*'), the remaining 60 per cent reading popular press.

The second point of interest is the use made of school and public libraries. The Indian and Pakistani group seem to make more use of these facilities than do the other two groups. Particularly striking here is the large percentage of English pupils (80 per cent) never using their public library.

Thirdly, of those pupils visiting the cinema in the Indian and Pakistani group, the majority see both English films and films in their first language. Also, it was often specifically mentioned that such a visit would be made with a parent (the father) rather than with friends.

Choice of friends

Table 2 shows information gained on the choice of friends of the three groups.

Thirty-five per cent of the Indian and Pakistani pupils choose best friends in school from outside their own group, 30 per cent choosing English pupils as best friends and 5 per cent choosing West Indian pupils. In contrast, the English pupils choose best friends only from their own group and do not reciprocate the choices from Indian and Pakistani pupils. Similarly, 95 per cent of the West Indian pupils choose best friends from their own group and the remaining 5 per cent direct unreciprocated choices to English pupils. Out-going choice of friends increases slightly for both Indian and Pakistani and West Indian groups outside the school but the English group again choose only English friends. Choices of partners in games and in class seem to be made with greater flexibility, as members of all three groups will choose 'anyone who is good at what we are doing', regardless of nationality.

Table 2: Pupils' choice of friends

	West Indian Pupils				Indian & Pakistani Pupils				English Pupils			
	West Indian %	*Indian & Pak.* %	*English* %	*Any* %	*West Indian* %	*Indian & Pak.* %	*English* %	*Any* %	*West Indian* %	*Indian & Pak.* %	*English* %	*Any* %
Best friends in school	95	—	5	—	5	65	30	—	—	—	100	—
Other school friends	60	10	30	—	16	36	48	—	16	4	80	—
Partner chosen for games	50	5	—	45	5	30	15	50	—	—	50	50
Sit next to in class	55	5	—	40	5	20	15	60	—	—	55	45
Friends outside school	80	5	15	—	—	60	40	—	—	—	100	—

Out-of-school Activities

Table 3 shows the percentage of times each group mentions each out-of-school activity as favourite.

The English pupils have the widest range of activities and the lowest choice of home activities. West Indian pupils also have a wide range of activities, the home being given more emphasis. Most striking is the limited range of activities of the Indian and Pakistani pupils, who give equal weight to activities in the home and in the park.

Job Aspirations and Degree of Parental Encouragement and Interest

The West Indian and English groups made most of their choices of future jobs within classes V, VI and VII of the scale. Few parents of these groups choose better jobs for the child than he himself chooses while 30 per cent of the West Indian and 48 per cent of the English parents do not mind what job their children take up. 20 per cent of Indian and Pakistani pupils, on the other hand, choose jobs from classes I and II, the remaining 80 per cent choosing equally from classes III and IV and classes V, VI and VII. This differs from the distribution of choices of the other two groups, in both of which the majority choose jobs from the lowest classes.

The degree of parental interest and encouragement also varies from group to group. Some parents in all groups choose better jobs for their children than the children themselves choose. The percentage of parents doing so is higher in the Indian and Pakistani group. More parents from the West Indian and English groups do not mind what jobs their child chooses in contrast to the Indian and Pakistani group where only 16 per cent display indifference. It is of interest here to note that although in England all the fathers of these pupils have jobs in classes V, VI and VII (controlled factor) it was found that in their country of origin 10 per cent of Indian and Pakistani fathers were teachers and high court clerks.

Table 3: Percentage of times each out-of-school activity is mentioned as favourite by each group

	WEST INDIAN %	INDIAN & PAKISTANI %	ENGLISH %
Park (sports)	33	44	26
Home activities	16	44	6
Parties	3	—	2
Friend's home	10	—	2
Church	2	—	—
Youth club	5	10	10
Dancing	6	—	14
Riding	—	—	6
Swimming	3	—	10
Walks	2	—	8
Speedway	—	—	4
Model plane	2	—	—
Tennis	2	—	—
Cycling	—	2	—
Child minding	—	—	2
Badminton	—	—	2
Camping	—	—	2
Hairdressing	—	—	2
Record collecting	16	—	4

Table 4: Choice of job and parental encouragement

	PUPILS				PARENTS		
Job Chosen	*West Indian* %	*Indian & Pakistani* %	*English* %	*Job Chosen*	*West Indian* %	*Indian & Pakistani* %	*English* %
*Classes I, II	—	20	—	Same job	60	64	40
*Classes III, IV	20	40	15	Better job	10	20	12
*Classes V, VI, VII	80	40	85	Don't mind	30	16	48

*Classes I, II = Professional, high administrative, managerial and executive.
Classes III, IV = Inspectional, supervisory and non-managerial higher and lower grades.
Classes V, VI, VII = Skilled, semi-skilled, and unskilled manual.
(The classifications are those of the Hall-Jones socio-economic index)

Language Most Used at Home and Parental and Sibling Knowledge of English

In the Indian and Pakistani group only, as can be seen from Table 5, fathers, siblings and any other persons living as members of the family (this included cousins and aunts) were all judged proficient in English. In spite of fathers' knowledge of English, the majority of the pupils use their first language with their parents at home. English is used most often between siblings and fairly often with other members of the family group apart from mothers and fathers.

Table 5: Language most used at home and parental and sibling knowledge of English

INDIAN AND PAKISTANI GROUP	FATHER %	MOTHER %	SIBLING %	OTHERS %
Proficient in English	100	—	100	100
Very little English	—	40	—	—
First language only	—	60	—	—
English used most at home	20	5	80	50
First language used most at home	80	95	20	50

Discussion of results

Considerable group differences emerge in this study, many of which could have an influence on the English language learning of these pupils. The Indian and Pakistani pupils reading the quality newspapers would have more opportunities to extend their vocabulary and experience different language registers. This group also tends to make much more use of school and public libraries, which could support this acquisition of a wider range of vocabulary and language experience. Use of libraries may indicate a greater interest on the part of Indian and Pakistani pupils in the extension of what is learned at school. One could suggest that libraries provide a haven from overcrowded living conditions but this is refuted by the high choice of home activities by this group, and the higher degree of parental aspiration for the child. This difference probably makes it easier for this group to acquire English vocabulary, and a comparison of their spoken English with that of the other two groups showed that their vocabulary was almost as wide, in spite of the fact that they are in a second language situation and continue to use their first language for many areas of activity in the home. In addition, the Indian and Pakistani pupils use the highest ratio of three and more syllable words; that is, they use one word of three or more syllables in every 15 words spoken, whereas the West Indian pupils use one in 19 words and the English, one in 26 words spoken.

The out-group mobility in friendship choices shown by the Indian and Pakistani pupils and directed towards English pupils could also be of considerable value in their English language acquisition, although in this study there is only slight evidence that these choices are reciprocated at the 'other school-friends' level. Greater contact with English friends may be of value in language learning for the immigrant pupils and would also help to break down the apparent isolation which English pupils choose for themselves. It is only when a specific task or situation in school provides motivation that the English pupils choose for the job in hand rather than according to nationality. This phenomenon has been remarked before in a study of immigrant pupils (Durojaiye, 1969). It may be that such 'task' situations are the point from which to move towards social integration.

The levels of job aspiration of the three groups may be related to their level of interest in school work in general and language learning in particular.

The tendency of Indian and Pakistani pupils to use their first language in many home situations would seem likely to restrict English language learning. The explanation for this may lie in the fact that all the mothers in this group have little or no English and therefore the first language is used more in courtesy to them. However, this point provides an interesting link with another aspect of this study.

The higher level of aspiration, the identification (through choice of friends) with another group, and the greater emphasis on family activities in the home and cinema visits with the father found in the Indian and Pakistani group, seem to indicate that this group compares very closely with the 'home-centred, aspiring' working-class family of Carter (1966). Such families are described in his work as placing the emphasis upon the family as a unit in which parents and children share in leisure activities in the home and go to the cinema together. Children are encouraged to study and to join youth clubs, job prospects are freely discussed and aspirations of parents and children tend to be relatively high compared to other working-class families. Disadvantages listed by Carter include the lesser degree of social contact, particularly for the parents, which can result from this emphasis on the family as a unit. In the Indian and Pakistani immigrant group in this study, the use of the first language in the home and the failure of mothers to acquire the second language may echo Carter's findings, and may constitute a restriction in the pupils' English language acquisition. Carter also notes that the middle class which home-centred, aspiring working-class families would like to emulate does not accept them as equals. This may find a parallel in the choices of the Indian and Pakistani pupils which were not reciprocated by the English classmates they chose as best friends. Finally, Carter stated that parents in such families may not know what is involved in training for the higher jobs chosen. Twenty per cent of the Indian and Pakistani pupils choose and are encouraged to choose jobs of a high level. Such choices may prove unrealistic in terms of the language ability and educational opportunities of the children.

The West Indian and English groups compare more closely with Carter's 'solid working-class family' which is characterized by an easy-going attitude, use of the popular press, no great emphasis on books, children out of the house for much of their leisure time, and parents and children taking pleasures separately. All the above can be seen in the present results, and may indicate the 'inertia and tacit acceptance of existing conditions' which characterize the solid working-class family. If this is the case, this factor coupled with the fact that West Indian pupils already have a form of English and do not therefore need to strive as hard to communicate as the Indian and Pakistani group, may lead to a lack of progress in their English language learning and usage.

The present study seems to show that the Indian and Pakistani groups, who are the group with the greatest task in language learning and are faced with the acquisition of a new second language, may be aided in this task by the social context in which such language learning takes place.

References

ALLEYNE, M. H. (1962). 'The Teaching of bilingual children: Intelligence and attainment of children in London, Wales and Trinidad whose mother tongue is not English'. Unpub. MA dissertation, University of London.

BERNSTEIN, B. (1961). 'Social Structure, Language and Learning'. *Educ. Res.* **3**, 163-176.

BLOOM, B. S. (1964). *Stability and Change in Human Characteristics*. New York: Wiley.

CARTER, M. (1966). *Into Work*. Harmondsworth: Penguin.

DUROJAIYE, M. O. A. (1969). 'Race Relations among Junior School Children', *Educ. Res.* **11**, 3, 227.

DUROJAIYE, S. M. (1968). 'A comparison of the spoken English of some West Indian and Asian Immigrant secondary school pupils with that of their English schoolmates'. Unpub. MEd Thesis, University of Manchester.

FROST, J. L. and HAWKES, G. R. (1966). *The Disadvantaged Child*. New York: Houghton Mifflin.

JONES, J., ed. (1965). *Linguistics and Language Teaching in a Multilingual Society*. Report of April 1964 Conference, University of the West Indies, Jamaica, London: Allen and Unwin.

MILLER, G. A. (1951). *Language and Communication*. New York: McGraw Hill.

SANFORD, F. H. (1942). 'Speech and Personality'. *Psychol. Bull.*, **39**.

SMILANSKY, S. (1968). *The Effects of Sociodramatic Play on Disadvantaged Pre-School Children*. New York: Wiley.

WEINREICH, U. (1963). *Languages in Contact*. The Hague: Mouton & Co.

SCHOOL NON-ATTENDANCE AND DELINQUENCY

T. G. TENNENT *Special Hospitals Research Unit, Broadmoor Hospital*

SCHOOL presents the majority of children with a major problem of adjustment. This has been recognized both from a theoretical and practical viewpoint. Klein (1945), for example, wrote 'On starting school the child passes out of the environment that constituted the basis of his fixations and complex formations and finds himself faced with new objectives and activities and must now test on them the lability of his libido'. Moore (1966) reported that in a group of normal children, 80 per cent experienced difficulties at the infant school stage. The major difficulty reported was in attending school. Although the majority of children may have difficulties with schooling, it is only the minority who fail to attend regularly. How large, then, is this majority?

Prevalence of school non-attendance

There are two sets of figures to be considered. These are the overall school attendance figures which provide information as to the percentage of children who are actually in school on a given day, and figures related to truancy. The difference between the truancy figures and the overall non-attendance figures will be accounted for by illness, parental holidays and various other factors. Important here may be an administrative decision as to who is and who is not labelled as 'truant'. Literally, the truant is 'one who absents himself from place of work, especially the child who stays away from school without leave' (Oxford English Dictionary). However, the words 'truant' and 'truancy' take on in the literature a certain pejorative usage. Some authorities seem to seek a differentiation between the blameworthy and the not blameworthy, creating as it were a stereotype truant who must be punished, as opposed to the school refuser, the sick, and the legitimately absent. There are few data on the prevalence of truancy but we can obtain some idea from overall attendance figures.

The largest survey available is that of Rankin (1958). All local authorities in England and Wales were asked to complete a questionnaire. Replies indicated that the average attendance during the autumn term was 93·1 per cent in the counties, and 92·6 per cent in the county boroughs. There was considerable variation between districts and between types of school. The average attendance for grammar schools was 95·2 per cent; comprehensive schools 92·6 per cent; and secondary schools 91·6 per cent.

Local surveys are in keeping with this more national survey. A London survey for ten months ending March 1950 showed an average attendance of 87·8 per cent. In Birmingham for a ten-month period ending March 1964 the average attendance was 90·8 per cent (Magnay 1959). A study of a Welsh town (Tyerman, 1968) showed an average attendance of 86·3 per cent.

Although Wootton (1959) quotes expert opinion as stating that the overall incidence of truancy has fallen and that in this field we are entitled to a little self-congratulation, the problem of overall non-attendance has remained almost constant over the last 20 years. Tyerman (1968) highlights the magnitude of the problem by commenting that if his figures were generalized to the entire school population it would be equivalent to each child having one half-day off school each week. The President of the Education Welfare Officers' National Association (1967) puts the figure slightly lower than this. He was reported as saying that at least one and a half million of Britain's eight million primary and secondary school children are estimated to be absent once in any week (*Observer*, March 26 1967).

Few studies specify the proportion of the nonattenders who are truanting. In Rankin's survey very few authorities replied to this part of the questionnaire. In those that did, the nine per cent of absentees was made up as five per cent absent through ill health, two per cent as unavoidable, and two per cent as unacceptable. Magnay comments that truancy accounts for 0·74 per cent of school absences, although only 0·45 per cent are ever prosecuted. In Bransby's study (1951) the non-medical reason for non-attendance accounted for 1·1 per cent—3·3 per cent of the total non-attendance. Truancy would, therefore, seem to account for between 0·74 per cent and 3·3 per cent of school non-attendance in this country, the range probably being dependent on the definition of truancy.

It is against this background that the literature relating school non-attendance and delinquency will be reviewed. The literature on this is extremely large as almost all the major studies make at least some reference to the relationship between poor school record and delinquency. The work reviewed has, therefore, been selected to include studies for varying age groups of offenders as well as varying degrees of sophistication. The literature can be viewed from two aspects: those delinquents who truant, and those who truant and later become delinquent.

Relationship between delinquency and truancy

(a) *Pre-Court*

Wilson (1962) studied a group of families referred to the medical officer of health of a certain city. These families were referred because they showed evidence of child neglect and were not primarily delinquent. Taking 90 per cent attendance as normal only 22 per cent of children obtained this. 25 per cent of the children had, in fact, absences of 40 per cent or over. By the time children have reached the ages of 13-14 the percentage of good attenders has dropped to 15 per cent.

Kvaraceus (1945) reviewed 761 cases seen at the Passaic Children's Bureau, and referred by various agencies other than the police or the court. He stresses that many of these were pre-delinquent, but also claims this to be more representative of the real state of delinquency. In this group 34 per cent were truants. He also comments how delinquency was often preceded by a term of poor attendance and low marks.

(b) *Juvenile Court*

The only British figures on this come from Rankin's survey which has been mentioned previously. One of the items in his questionnaire related to delinquency and school non-attendance, but unfortunately only one of the 146 local authorities replied to this item. In this one case 75 per cent of the delinquents had good school attendance records.

Sullenger (1930), in a thesis submitted at the University of Missouri, states that 'In Omaha truancy was at the basis of at least 90 per cent of delinquency, while in Columbia two thirds of the delinquents handled by the courts had been in trouble on account of truancy'.

More selected court populations such as those seen in special clinics and remand homes show a high incidence of truancy among delinquents.

Healy and Bronner (1926) reviewed the records of three groups of repeated offenders in Chicago and Boston. They recognized two types of truanting, from home and from school, with a considerable overlap between the two groups. The figure of 40 per cent is given for both groups. Only those cases in which school non-attendance was more than slight and occurring for unjustified reasons were included.

Also from America we have the Gluecks' (1934) study of 1,000 cases seen at the Judge Baker Clinic. These were all children who had been referred by the court for further investigations at the Clinic, and comprised mainly defective or serious offenders and those presenting physical, mental, educational or personality difficulties. Of these 1,000 cases, 630 had truanted fairly persistently (64·1 per cent) and 48·9 per cent had also run away from home. This study also showed that 84 per cent were at least one year behind in school attainment compared with 37·8 per cent of the general elementary school population.

There are similarly several British studies which, in passing, draw attention to this relationship between delinquency and truancy. Burt (1925) reported that of 200 consecutive delinquents examined by him 24 per cent of the boys and 9 per cent of the girls had a past history of truancy. Litauer (1957), in his analysis of 253 cases referred to the Portman Clinic (only 3 per cent were 'straight truancy cases') comments that school attendance was irregular or only 'fair' in 58·4 per cent of cases. These were mainly court cases, though comprising a small percentage (18·2 per cent) of referrals from other sources. Studies of remand home populations (Scott, 1965; Essex-Carter, 1961; and McLintock, 1952) report irregular school attendance in between 43 per cent and 73 per cent of all cases.

Institutions

In his study of 4,000 adolescent offenders seen at the Borstal assessment centre in London during the period 1930-37, Norwood East (1942) found that only 5·8 per cent of these boys could be called truants, though another 4·3 per cent had patterns of persistent non-attendance for other reasons. However, he did show that absence from school, especially truancy, was associated with multiple convictions to a significant degree (p. $<0{\cdot}001$). Gibbens' (1963) study of Borstal lads carried out in 1953 and 1955 indicated that 39 per cent of these had very poor attendance at school.

Mannheim and Wilkins (1955), in their study 'Prediction Methods in Borstal Training', felt that more objective information about school absences should be sought. In a very large number of cases, no school report was available. However, they found that where there was no reference to truancy 62 per cent were successes and 38 per cent failures, whereas where there was, there were 55 per cent successes and 45 per cent failures.

There are also a number of American studies on juvenile and youth institutions which indicate the same trend. For example, the Grants (1963) (Californian Treatment Project) state that of the delinquent group 50 per cent were recognized truancy problems. Bowler and Bloodgood (1936) review the cases of 751 boys in four state institutions (California, Michigan, New York and Ohio) who had been released five years prior to the study. Twenty-three had died and of the remaining 81 per cent 623 boys were located. Records as to school career were obtained in 497 cases. No truancy was recorded in only 77 cases (15 per cent), occasional truancy in 59 cases (12 per cent), and habitual truancy in 297 cases (60 per cent). In the remaining 64 cases (13 per cent) no statement one way or the other was made. Interestingly, they found no difference in home conditions or standards to be associated with the presence or absence of truancy, and only a slight difference in the type of neighbourhood.

The Gluecks (1950), in their mammoth study *Unravelling Juvenile Delinquency*, matched 500 boys in institutions (i.e. persistent offenders) with 500 non-delinquents on age, intelligence, ethnic origin and area of residence. Although 25·8 per cent of the controls had committed some minor infringements of the law only 10·8 per cent of this non-delinquent group had ever truanted as opposed to 94·8 per cent of the delinquent group. 62·3 per cent of this delinquent group started to truant under the age of 11, whereas in the non-delinquent group truancy tended to occur after 11 (70 per cent).

Adult offenders

Adult offenders, too, appear often to have poor school attendance records. Andry (1963), in his study of short-term offenders, included a question on school attendance. He obtained no answer in a third of the cases, but in the remainder 28 per cent of recidivists and 20 per cent of non-recidivists admitted to truanting from school.

Blackler (1968) recently reported an investigation of differences between men serving a first and second prison sentence, arguing that it is from the latter group, the primary recidivists, that the more advanced recidivists will be drawn. Among other factors she found that there was a high incidence of truancy among the second sentence men, the difference being significant at the one per cent level.

American studies again predominate in the literature in this field. Bronwell (1961) states that of the inmates of a Massachusetts prison 75 per cent had been truants from school. Sutherland and Cressey (1960) found that of 2,021 prisoners investigated, 40 per cent had first been committed to an institution because of truancy.

Johnson (1943) stated that of 18,000 youths sent to institutions per year, over half were committed as truants or incorrigible at school: he then surveyed the school records of 634 consecutive prison committals. 258 of these were recidivists of whom 194 (71 per cent) had truancy as the 'first entry in their ledger of crime'. Similarly, truancy was the first crime of 61 per cent of the first offenders. A further 24 per cent had been 'off the record truants'.

Recidivism would also seem to be correlated with earlier school attendance difficulties. The Gluecks (1940), in their follow-up study of young delinquents, concluded that the majority of criminals mature, but that those who do not and persist with crime invariably had school behaviour problems.

Johnson also showed a higher rate of truancy (71 per cent) for recidivists than those committed to prison for the first time (61 per cent). Shaw and Mackay (1942) discuss the truancy rate among delinquents and conclude that truancy is more frequently a precursor of recidivistic delinquency in areas where the rate of delinquency is comparatively low.

The evidence obtained so far is summarized in Table 1. Column 3 indicates the source of information regarding truancy. It will be appreciated that, even when school reports have been used, the level of non-attendance considered to be serious enough to be called truancy is not specified except in Wilson's study.

Self-reporting is open to many different sources of bias and together with these findings the study by Porterfield (1946) on American university students, 58 per cent of whom admitted to truanting from school, should be borne in mind.

Nearly all the evidence so far, however, could equally suggest that delinquency precipitates truancy or vice versa. There are, of course, at least three possibilities to be considered regarding any relationship between truancy and delinquency:

1. Truancy may lead to delinquency as the truanting child 'with idle time on his hands has to roam the streets in search of food and entertainment and is, therefore, likely to get into mischief' (Mannheim, 1965); or 'is important to the degree that it increases the possibility of

Table 1: Delinquents who have truanted

TYPE OF GROUP STUDIED	% OF GROUP WITH TRUANCY	SOURCE OF INFORMATION RE TRUANCY	DATE OF STUDY	AUTHOR	COUNTRY OF STUDY
School	2	LEA	1958	Rankin	UK
School	0·74	Not specified	1959	Magnay	UK
School	5·2—10	School Reports	1947	Bransby	UK
Problem Families	78-85	School Reports	1960	Wilson	UK
Juvenile Court	25	One LEA	1958	Rankin	UK
Juvenile Court	24	Not specified	1925	Burt	UK
Portman Clinic	54	Not specified	1952-53	Litauer	UK
Juvenile Court	40	Not specified	1943	Tay	UK
Remand Home	43	Not specified	1954-58	Essex-Carter	UK
Chronic Absconders in a Remand Home	73·1	School Reports	1964	Scott	UK
Detention in a Remand Home	55	Not specified	1950	McLintock	UK
Borstal	5·8—10·1	Not specified	1930-37	East	UK
Borstal	39	Not specified	1953-55	Gibbens	UK
Short Term Prisoners	20-28	Self Reports	1957-58	Andry	UK
School Absentees	22	School Reports	1963	Kahn	USA
Non-offenders	10·8	School Reports	1950	Glueck, S. & E.	USA
Delinquents and Pre-delinquents	34	School Reports	1945	Kvaraceus	USA
Juvenile Court	66	Not specified	1930	Sullenger	USA
Special Clinic (Repeated Offenders)	40	Not specified	1926	Healy and Bronner	USA
Judge Baker Clinic	64·1	School Reports	1934	Glueck, S. & E.	USA
Delinquents	50	School Reports	1963	Grant	USA
Boys State Institution	60-72	School Reports	1936	Bowler	USA
Boys State Institution	94·8	School Reports	1950	Glueck, S. & E.	USA
Prison	75	Not specified	—	Bronwell	USA
Prison	61-71	School Reports	1943	Johnson	USA

contacts with delinquent behaviour patterns' (Sutherland, 1960).

2. Delinquency may lead to truancy in that the child who has committed an offence may be afraid of going back to school and, indeed, a secondary series of events may be set up in the school which may well make him more likely to reject it.

3. Truancy and delinquency may both be symptoms of some deeper maladjustment which shows itself both in the committing of crime and the absence from school.

Relationship between truancy and delinquency

The previous section illustrated the point that many delinquents both juvenile and adult have a history of poor school attendance. This correlation, although interesting, in no way shows us that truants go on to become delinquents. There are, however, few follow-up studies on the later careers of truants.

Schulman (1928), in the USA, studied the subsequent careers of 251 consecutive boys committed to a special school because of chronic illegal absence from school. The survey covered their histories from the time of their release for a period of six to eight years. In this time 51 per cent had come before the court for criminal offences.

Robins (1966), in a follow-up study of 524 child guidance clinic cases who were compared with 100 matched non-patient controls, included truancy as one of the symptoms which were explored in terms of the subsequent career of the child. Truancy was found, along with several other symptoms, to predict significantly more than the expected rate of sociopathic personality in later life. Thirty-four per cent of those cases who showed this symptom as a child were later diagnosed as having a sociopathic personality.

Ferguson (1952) surveyed all school leavers in Glasgow who were leaving school at the earliest possible age in June 1947. This group will, therefore, contain a high percentage of those poor at school and with poor financial backgrounds. He found that among the regular school attenders nine per cent appeared in court by their eighteenth birthday as compared with 17 per cent of those who had put in a poor attendance, whatever the reason. Where irregular attendance was due to truancy 39 per cent had appeared in court.

Tyerman (1958), in a Welsh town, analysed the subsequent records of children appearing in court for school non-attendance. Out of 405 children appearing between the years 1946-1952, 144 were 'identified' by the school welfare officers as truants as opposed to cases in which the parents had kept them away. By the end of 1953, 64 of these children had criminal records.

Conclusions

These studies all suggest a significant correlation between school non-attendance and later delinquency. In practical terms this group must be considered to be at risk and requiring preventive measures. There is, however, the danger of assuming that truancy is a single syndrome and not merely a symptom which can form part of several symptom complexes or syndromes. It may well be that there are particular kinds of truancy syndrome associated with particular forms of social maladjustment. Further studies should, therefore, aim to go beyond showing a correlation between truancy and delinquency and aim to explore the determinants of this relationship.

References

Andry, R. (1963). *The Short Term Prisoner*. London: Stevens.

Blackler, C. (1968). 'Primary Recidivism in Adult Men', *Brit. J. Criminol.*, **8**, 130-69.

Bowler and Bloodgood (1936). *Institutional Treatment of Delinquent Boys*. United States Department of Labour, Children's Bureau publication 230.

Bransby, E. R. (1951). 'A Study of Absence from School', *Med. Off.*, **86**, 223-40.

Bronwell, H. (1961). Quoted in 'School and the Problem of Delinquency' by B. M. Moore. *Crime and Delinquency*, **7**, 201-12.

Burt, C. (1925). *The Young Delinquent*. London: University of London Press.

East, Sir Norwood (1942). *The Adolescent Criminal*. London: Churchill.

Essex-Carter, A. (1961). 'Boys on Remand—A Study of 367 Cases', *Brit. J. Criminol.*, **2**, 132-49.

Ferguson, T. (1952). *The Young Delinquent in his Social Setting*. London: Oxford University Press.

Gibbens, T. C. N. (1963). *Psychiatric Studies of Borstal Lads*. London: Oxford University Press.

Glueck, S. and Glueck, E. (1934). *1,000 Juvenile Delinquents*. Cambridge, Mass.: Harvard University Press.

Glueck, S. and Glueck, E. (1940). *Juvenile Delinquents Grown Up*. New York: Commonwealth Fund.

GLUECK, S. and GLUECK, E. (1950). *Unravelling Juvenile Delinquency*. Cambridge, Mass.: Harvard University Press.

GRANT, M. and GRANT, J. D. (1963). *Californian Treatment Project*, Monograph 3.

HEALEY, W. and BRONNER, A. (1926). *Delinquents and Criminals: their making and unmaking*. New York: Macmillan.

JOHNSON, A. C. (1943). 'Our Schools Make Criminals', *J. Crim. Law. Criminol. and Pol. Sci.*, **33**, 310-15.

KLEIN, E. (1945). 'The Reluctance to go to School', *Psychoanalytical Study of the Child*, **1**, 263-79.

KVARACEUS, W. C. (1945). *Juvenile Delinquency and the School*. Yonkers, N.Y.: World Book Company.

LITAUER, W. (1957). *Juvenile Delinquents in a Psychiatric Clinic*. London: ISTD Publication.

MCLINTOCK, F. H. and BAGOT, J. H. (1952). *Detention in Remand Homes*. London: Macmillan.

MAGNAY, L. (1959). *Truancy—or School Phobia?* Proceedings of 15th Inter-Clinic Conference, Nat. Assoc. Ment. Health.

MANNHEIM, H. (1965). *Comparative Criminology*. London: Routledge and Kegan Paul.

MANNHEIM, H. and WILKINS, L. (1955). *Prediction Methods in Borstal Training*. London: HMSO.

MOORE, T. (1966). 'The Difficulties of the Ordinary Child in Adjusting to Primary School', *J. Child Psychol. and Psychiat.*, **7**, 17-38.

PORTERFIELD, A. L. (1946). *Youth in Trouble*. Fort Worth, Texas: Leo Potisham Foundation.

RANKIN, L. (1961). 'Irregular Attendance at School', *Educ. Rev.*, **13**, 121-27.

ROBINS, L. N. (1966). *Deviant Children Grown Up: A Sociological and Psychiatric Study of Sociopathic Personality*. Baltimore, M.D.: Williams and Wilkins.

SCHULMAN, H. M. (1928). *From Truancy to Crime*. New York State Crime Commission Report.

SCOTT, P. D., SHAW, D. and WHATMORE, P. B. (1965). 'A Secure Accommodation Unit', *Brit. J. Criminol.*, **4**, 319-25.

SHAW, C. R. and MACKAY, H. D. (1942). *Juvenile Delinquency in Urban Areas*. University of Chicago Press.

SULLENGER, T. E. (1930). 'Some Social Factors in School Non-Attendance', *School and Society*, **41**, 238-40.

SUTHERLAND, E. H. and CRESSY, D. R. (1960). *Principles of Criminology*. Philadelphia: Lippincott.

TYERMAN, M. J. (1958). 'A Research into Truancy', *J. Educ. Psychol.*, **28**, 217-25.

WILSON, H. (1962). *Delinquency and Child Neglect*. London: Allen and Unwin.

WOOTTON, B. (1959). *Social Science and Social Pathology*. London: Allen and Unwin.

MARRIED WOMEN TEACHERS— ROLE PERCEPTIONS AND CAREER PATTERNS

ANGELA SHEPHERD *Chorley College of Education*[1]

THE CLAIM that a belief in the compatibility of teaching with marriage acts as an incentive to women to choose this career received some support from the findings of the study described. The majority of the respondents also saw their work role as subsidiary to their domestic role, with the domestic demands being accorded first priority. Part-time teaching opportunities were welcomed, with almost two-thirds of the ex-teachers hoping to return on a part-time basis. Opinions on the use of nursery provision varied considerably; those respondents exhibiting the greatest willingness to return to teaching expressed significantly greater approval of nurseries. A considerable range of opinions emerged on wives and mothers going out to work, despite the fact that the husbands were extremely tolerant on this matter. Inter-generational differences may provide one source of such variations; investigation of socio-economic background and initial reasons for entering teaching as other possible sources proved inconclusive. The majority of the respondents were following or intending to follow the career pattern described by Gavron, though some did so with reluctance.

It is over five years since the note of dissent attached to the Ninth Report of the late National Advisory Council on the Training and Supply of Teachers made a plea for research into the wastage of married women teachers. These members of the teaching profession had been the subjects for research prior to the Ninth Report, of course. The large-scale survey by Kelsall (1963), for example, had been immensely valuable in establishing trends previously unknown. Unfortunately, the motivation and educational and social background of the respondents could not be studied intensively, due to the scale of the inquiry and the need to rely on a comparatively brief postal questionnaire. The main interest of the British Federation of University Women (1964) was in the factors influencing women undergraduates in their decision for or against entering teaching, but a smaller study of the attitudes of married women to their work was also undertaken. Only graduates were considered here; all were members of the BFUW and all were working at the time of the investigation. Parris (1965) concentrated on non-graduate women teachers and their views on part-time work, so we learn little about the 43·8 per cent of the ex-teachers in the sample who did not wish to return to work at all.

The study on which this article is based was an attempt to consider some aspects of the problem which had been rather neglected in previous research and which were suggested in the note of dissent as being worthy of attention, i.e. matters connected with the educational and social background and motivation of married women teachers and especially with the way in which the respondents viewed the role of the married woman. The sample of 180 was composed of 91 married women, teaching either full-time (61) or part-time (30), and 89 married teachers out of service. Personal interviews with the respondents were conducted during 1966 and 1967. The research was carried out in three divisions of a large local education authority. The divisions selected covered heavily-populated, old industrial areas and were described by the LEA staffing officer as 'black spots', where staff turnover was considerable and where the effects of the teacher shortage were then felt most strongly. The non-return of married women teachers in these areas could not be attributed simply to lack of opportunity.

---

[1] Formerly at the Department of Sociology, University of Hull.

At the time of the research, married teachers were the focus of extensive national and local advertising campaigns. Such advertisements are now noticeably absent and anxieties have been expressed about the future employment prospects of married women teachers. In some areas, the services of returners, especially as part-timers, are no longer urgently required. Official attempts to dispel rumours of teacher unemployment have included the reassurance that authorities should not 'generally' find it necessary to dismiss part-timers, together with the admission that there may have to be 'some relaxation' of the search for new part-timers and married women returners (Department of Education and Science, 1968).

A reduction in the prospects for married women returners could considerably diminish the attraction of a teaching career for many girls. There is some evidence that a belief in the compatibility of teaching with marriage acts as an incentive to women to choose this career. The British Federation of University Women (1964) predicted that teaching was likely to become the married woman's profession. Their findings suggested that those girls expecting to marry early tended to choose teaching as a career. Those opting for teaching also had the greatest desire to continue with their careers after marriage. Facilities for getting away from the job (e.g. short hours of work, long holidays) were more important to the would-be teachers than to students choosing other professions.

When the 180 respondents in the present study were asked how they would feel about their own children entering teaching, only 39 per cent said they would be pleased if any of their children did so. A further 55 per cent would approve in the case of a daughter but would dislike the idea or have reservations in the case of a son. Low pay and poor prospects were the main reasons given for any opposition to boys entering teaching. The compatibility of teaching with marriage was by far the most popular reason for these women approving the idea of daughters becoming teachers. All 99 respondents (i.e. 55 per cent of the sample) stressed the ease of return for married women and described teaching as the 'ideal' occupation for a married woman. Only 17 respondents gave any additional reason, most of these emphasizing the enjoyable and rewarding nature of the work. Whether a diminution of opportunities for married women to return to teaching could seriously affect recruitment is a matter deserving more thorough investigation; so is the possibility that doubts about future employment opportunities have contributed to the recent rapid rise in teacher militancy.

Gavron (1966) has described the pattern of life of the modern woman as work until marriage, work after marriage until the children arrive, and a return to work when the children are older. Where married women teachers are concerned, it would be useful to know how long such interruptions are likely to be and the extent to which the lives of these women follow this pattern. Each year, women form the majority of new entrants to teaching and many of them marry and leave the profession within a few years. Wastage rates are greater than were predicted in the Ninth Report (cf. also *Statistics of Education*). The factors influencing the decisions of married women on whether and when to return to teaching remain worthy of attention.

Firstly, how effective were the advertising campaigns of the recent past? The rapid rise in recruitment of married returners after 1961 seemed to testify to the success of the campaigns. Surprisingly, the respondents in the present study were apparently resistant to the appeals of advertisements. Of the 98 women who had returned at least once after a period out of service, only four thought advertisements had influenced them in any way. There were 63 ex-teachers in their first period out of service; all claimed that their decisions on future returns to work had not been affected by advertising. Even those ex-teachers who described the advertisements as 'good' or 'appealing' went on to add . . . 'But they have no effect on me'. One hundred and forty-six respondents (81 per cent of the total sample) made some further comments. Only 11 women had favourable opinions, and the remainder were often highly critical.

Overall there appears to be little encouragement for the use of advertising as a recruiting agent here. What did emerge clearly, though, was the effectiveness of the personal approach. Of the 161 respondents who had resigned from teaching at least once, 83 (51·5 per cent) had been asked to return by a headteacher or other member of staff of a short-staffed school. Sixty-four women had returned at least once in response to such a request. Twenty-six of these said they would not have returned so soon had they not been approached personally. Heads and teachers of short-staffed schools were apparently very active in soliciting the return to work of married women and seemed to achieve more success than the impersonal appeals embodied in the advertising.

A second factor to be considered is the provision of part-time work, commonly assumed to be an incentive to married women to return to teaching. This assumption was certainly embodied in the advertisements. The hypothesis that married women will return sooner to part-time posts than to full-time posts seemed plausible. However, the findings showed it was not merely that those who returned initially to part-time work lost less time from teaching service than those who returned to full-time posts. Rather it appears that respondents who qualified before 1950 have tended:

(a) to return to full-time rather than part-time posts initially;

(b) to spend longer periods out of service before their first return, regardless of the nature of the post returned to;

compared with the respondents qualifying since 1950 who have tended:

(a) to return to part-time rather than full-time posts initially;

(b) to spend shorter periods out of service before their first return, regardless of the nature of the post returned to.

The trend (a) could be explained by the opportunities for part-time work which expanded greatly during the sixties. There still remains the tendency for the more recently qualified women to return sooner to full-time posts. Sixty-four ex-teachers were planning to return at some time in the future. 20·3 per cent of these said they intended to return to full-time posts. And 13·3 per cent of all respondents said they disliked or disapproved of part-time teaching as they objected to sharing a class and/or thought the system bad for the children. However, 61 per cent of ex-teachers planning to return said they hoped to find part-time posts. It seemed likely that these women would delay returns to work where part-time posts were not available. Despite the popularity of part-time work, only 11·6 per cent of all respondents thought increased opportunities for part-time work would encourage more married women to return (cf. also Kelsall, 1963). Possibly this could be interpreted as reflecting satisfaction with existing opportunities in the area. None of the 55 respondents with experience of part-time work had any complaints about school placement or hours of work, and only eight women had any difficulties in obtaining part-time posts.

The third factor to be considered was nursery provision. Sixty per cent of the respondents thought more nursery provision would act as an incentive to married women to return (Kelsall, 1963)[1] but it would be wrong to assume that all those who suggested this as an incentive would themselves make use of nurseries or be encouraged to return by their increased provision. For example, 48 working teachers and 60 ex-teachers gave 'more nurseries' as an incentive, but almost half of these had either never used nurseries in order to return to work or had no intention of doing so in the future.

The opinions on nursery provision of the 162 respondents with children were explored in some depth. Overall, the ex-teachers expressed significantly less approval of nurseries than the working teachers (see Table 1).

The fact that some women disapprove of nurseries does not necessarily mean that they will only return to work when their children are at school. In 20 cases respondents were quite happy to leave a young child in the care of a grandmother or child minder, for example, whereas they would not use a nursery. Alternatively, a woman may approve of nurseries and send her children to one, yet not return to work. There were a few such cases, mostly where the child was an only one. In addition, women who do approve of nurseries may be unable to use one: there may

---

[1] Eight per cent of Kelsall's pre-war respondents and 20 per cent of post-war respondents suggested this as an incentive.

Table 1: Opinions on nursery provision

	Ex-Teachers		Working Teachers	
	No.	%	No.	%
Unreserved approval	14	16·3	27	35·5
Approval with reservations as to type of nursery and/or age of child	29	33·7	25	32·9
Disapproval	43	50·0	24	31·6
Totals	86	100	76	100

be no provision in the area, or no places available. Nineteen respondents had to make other arrangements for their children because of lack of provision. It is interesting to note that of the 90 women in the sample who had taught while having at least one pre-school child to care for, only 29 had ever used any type of nursery provision. Forty-six respondents had relied on a grandmother, and 14 on child minders.

The respondents with the greatest willingness to return to teaching expressed significantly greater approval of nurseries. Ninety-six respondents had taught in the past or intended to return in the future while having at least one pre-school child to care for and only 15·6 per cent of this group expressed disapproval of nurseries. Forty-four respondents had returned or intended to return only when all their children were at least school age. Of this group 68·2 per cent disapproved of nurseries.

The respondents' opinions on wives working also show considerable variation (Table 2), with the ex-teachers least enthusiastic about mothers working before all their children are at school.

Not surprisingly, approval of wives working tended to be combined with approval of the use of nursery provision. Of the 91 respondents approving of a wife working before all her children are of school-age, 73 (80·2 per cent) approved of the use of some type of nursery provision. As in the case of opinions on the use of nurseries, the respondents expressing the greatest willingness to return to teaching exhibited significantly greater approval of wives returning to work before all their children are school-age. Ninety-six respondents had taught in the past or intended to return in the future before all their children were at school and of these 84 (87·5 per cent) felt this was quite compatible with the role of wife and mother. The remainder of this group had acted or intended to act contrary to their own views for financial reasons.

The opinions of the husbands were also investigated. Very few husbands had any firm opinions on the use of nursery provision for their children and tended to follow their wives in this matter. Even on the subject of wives working, the husbands seemed extremely tolerant, though there

Table 2: Opinions on wives working

	Ex-Teachers		Working Teachers	
	No.	%	No.	%
Approve of a wife working full-time or part-time before all her children are school age	33	38·3	58	76·3
Approve of part-time or full-time work after all her children are at school	39	45·4	16	21·1
Ideally, a wife should not work at all	14	16·3	2	2·6
Totals	86	100	76	100

Table 3: Opinions on nurseries and wives working compared by age-group and work situation

	Under 35						35 and over					
	Working Teachers (44)		*Ex-Teachers* (67)		*Total* (111)		*Working Teachers* (32)		*Ex-Teachers* (19)		*Total* (51)	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Approve of a wife working full or part-time before all her children are school age	41	93·2	30	44·8	71	63·9	17	53·1	3	15·8	20	39·2
Approve of some type of nursery provision	35	79·5	37	55·2	72	64·9	17	53·1	6	31·6	23	45·1

were a few cases of considerable conflict (cf. Thompson and Finlayson, 1962).

Since only current opinions were considered, the opinions of the husbands of the working teachers may be coloured now by the experiences of their wives working in the past. In several cases, respondents made voluntary mention of their husbands' original disapproval of their returning to work, going on to explain that 'Because he sees I'm so much happier', or 'Because it doesn't affect him', or 'Now he sees that I can cope after all', their husbands had ceased to object.

Contrary to popular opinion, the married women in the sample tended to act in accordance with their own views, going their own way or 'talking round' their husbands. Of the 21 cases of major differences of opinion (where the husbands expressed disapproval of wives working while the respondents all expressed varying degrees of approval) there was only one example of a wife not returning to work because of her husband's objections. It seems that husband's objections to wives working play no significant part in affecting their wives' decisions on whether and when to return to teaching. Although it can be claimed that the support of the husband is invaluable to a working wife, there is little evidence that the husband's disapproval will delay or prevent his wife's return to work. The only argument that the preceding examples can be said to support is the positive one that a wife will be encouraged to return to work if her husband approves of her doing so.

In their answers to the questions on opinions on wives working and nursery provision, the respondents were expressing their views on the minimum responsibilities of a mother to her family in terms of the care of the children and the presence of the mother in the home. Each respondent had her own definition of these responsibilities and what was seen as the minimum varied greatly throughout the sample. Despite their similar educational backgrounds and common occupation, the respondents held widely conflicting opinions on the role of wife and mother. Several factors were considered in an attempt to find reasons for this variation.

The results of relating the 'social class'[1] and the income of the husbands to their wives' opinions on the role of wife and mother proved inconclusive although in percentage terms, the wives of men in Social Class II showed most approval of wives working.

A more intensive study of socio-economic background than was attempted here may prove fruitful. So few respondents expressed any regrets about taking up a teaching career that present attitude to the job could not be related to the respondents' ideas on the role of wife and mother. The hypothesis that her like or dislike of her chosen occupation will influence a married woman teacher's definition of her role of wife and mother remains for future investigation.

The respondents in the sample were drawn from a range of age-groups. In order to investigate the possibility of inter-generational differences in opinions the respondents were divided into those under 35 years of age and those of 35 and over (Table 3).

---

[1] The Registrar General's classification was used.

This exercise was complicated by the fact that working teachers and ex-teachers differed significantly in their opinions, the ex-teachers being the more 'conservative'. In view of the fact that 89·5 per cent of working teachers had taught before all their children were school age, while only 32·6 per cent of ex-teachers intended to do so, this difference in opinions between the work-situation groups is not surprising. However, within the same work situation group, there were some significant differences in opinion between those under 35 and those 35 and over. Working teachers under 35 showed more approval of the use of nursery provision and of mothers leaving pre-school-age children than working teachers of 35 and over. Similarly, ex-teachers of 35 and over were more 'conservative' than ex-teachers under 35 about the time of returning to work, but differences in opinions on nurseries were not significant. At the same time, opinions on the role of wife and mother showed considerable variation within the same age group; for example, ex-teachers under 35 were much more 'conservative' than working teachers of the same age. However, other examples of inter-generational differences have emerged, i.e. where time lost from teaching before return and the tendency to take up part-time work were considered. There do seem to be some notable differences between the older and younger respondents in their views on combining teaching with caring for a husband and family.

In addition to variations in opinions on the role of wife and mother there were considerable variations in motives for returning to work. In their Peek-Frean study, Jephcott, Seear and Smith (1962) could claim that the majority of the married women interviewed said that it was mainly for money that they worked; work was seen as a means of assisting the family, not escaping from it. Gavron (1966) described her working-class respondents as going out to work for a combination of financial, emotional and intellectual needs, while the middle-class respondents returned for a combination of emotional and intellectual needs. All these motives for return were found among the teachers in the sample. Emotional and intellectual needs were certainly important to some respondents while they were of no importance to others, who claimed that they would not work at all were it not for financial necessity. Returns to teaching were made for purely financial reasons as often as for non-financial reasons. No 'major' or 'main' motive for returning to teaching existed among these respondents. 'Professional'/'educated'/'middle-class' women do not necessarily share the same ideas on the role of wife and mother or the same ambitions regarding a career after marriage.

If the role of wife and mother is seen as more demanding in terms of the presence of the mother in the home, yet the desire to return to work and/or the desire for extra income exist, these desires tend to be subordinated to the feeling that a mother's place is in the home until her children are school-age, or maybe even later. There were 17 such cases among ex-teachers. Of these, six admitted to being extremely bored at home while the remainder stressed the need for extra income. All of them felt it would be wrong to return to work while having a child under five at home, and intended to wait until all their children were at school before taking up their careers again. Where respondents such as these had returned or intended to return to teaching before what they felt was the 'right' time, purely financial reasons were predominant. Of 23 such cases, 13, i.e. 56·5 per cent, gave purely financial motives. In comparison, where the role of wife and mother is seen as less demanding in terms of the presence of the mother in the home, women do tend to return to work before all their children are school-age. Where these women return, purely financial reasons do not predominate. In 84 cases only 14, i.e. 16·6 per cent, had purely financial motives—a significant difference.

Conclusions

The study showed the existence among a group of married women teachers of widely differing opinions on the role of wife and mother, together with the relationship of these opinions to willingness to return to teaching. Decisions on whether and when to return to teaching were generally in accordance with a respondent's ideas on her responsibilities to her family. The great majority of the respondents were following or intended to follow the career pattern described by Gavron (1966), though some did so with reluctance.

Where a woman sees returning to work before all her children are at school as tantamount to neglecting her family, as did 71 of the 162 respondents with children, the provision of more nurseries is unlikely to encourage a return to work before this time. Of course, more nursery provision would help those who are willing to leave pre-school children and those who have no choice but to do so. However, there were very few cases of returns to work being delayed by lack of nursery provision. It was almost always possible for alternative arrangements to be made for the care of children, although these alternatives may be more expensive or less convenient than would a nursery.

The same argument applies to the provision of part-time teaching. There was no evidence that the existence of opportunities for part-time work would encourage the returns of those who believed it was wrong to work at all or earlier returns by those who believed a mother should be with her children until they are at least school age. However, 61 per cent of the ex-teachers planning to return said they hoped to find part-time posts, and a lack of such opportunities could considerably delay the returns of many of these respondents. During the period February 1968—February 1969 the numbers of part-time married women returners recruited fell drastically from 4,552 to 3,039; a trend which, if continued, would seem to spell disappointment for many married women teachers.

References

NATIONAL ADVISORY COUNCIL ON THE TRAINING AND SUPPLY OF TEACHERS (1965). Ninth report: *The Demand for and Supply of Teachers 1963-68.*

KELSALL, R. K. (1963). *Women and Teaching.* London: HMSO.

BRITISH FEDERATION OF UNIVERSITY WOMEN (1964). *Women Graduates and the Teaching Profession.* Ed. M. Collins. Manchester: Manchester University Press.

PARRIS, J. (1965). 'The supply and utilization of part-time teachers and their place in the profession'. Unpublished MEd thesis, University of Manchester.

DEPARTMENT OF EDUCATION AND SCIENCE (1968). *Reports on Education, No. 51.* London: HMSO.

GAVRON, H. (1966). *The Captive Wife.* London: Routledge and Kegan Paul.

DEPARTMENT OF EDUCATION AND SCIENCE (1968). *Statistics of Education: Teachers,* Vol. 4. London: HMSO.

THOMPSON, B. and FINLAYSON, A. (1962). 'Married Women Who Work in Early Motherhood', *Brit. J. Soc.*, **XIII**, 1, p. 159.

JEPHCOTT, P. *et al.* (1962). *Married Women Working.* London: Allen and Unwin.

THE IMPLEMENTATION OF NUFFIELD 'O' LEVEL CHEMISTRY COURSES IN SECONDARY SCHOOLS

E. W. JENKINS *Centre for Studies in Science Education, Department of Education, University of Leeds*

A STUDY of schools entering pupils for the examinations of the Nuffield 'O' level Chemistry project suggests that, as yet, such schools are located near the original centres of project activity. Comparison of the heads of the Chemistry departments in matched samples of 'Nuffield' and 'non-Nuffield' schools (summer 1969), established no significant difference in academic and professional training or in experience of non-classroom employment. Nuffield Chemistry schools were found to have a larger percentage of pupils following sixth form science courses but the difference in annual, per capita expenditure on Chemistry teaching was significant only at the five per cent level.

The Nuffield 'O' level Chemistry course is a collection of teachers' guides, pupils' laboratory notebooks, background reading and associated visual material, representing a 'field-tested' five-year course in Chemistry to the Ordinary level of the GCE examination. Pupils who follow the course may take the specially arranged Nuffield examination, administered by the University of London Examination Board on behalf of all the other GCE boards. This special examination differs from the more traditional 'O' level examination in Chemistry in a number of important respects, particularly in its construction in accordance with a carefully defined *and published* examination 'blueprint' (Mathews, 1967).

In the period 1963-65, the materials for the 'O' level course underwent trial in selected schools, covering some 200 teachers and over 5,000 pupils (Halliwell, 1966). Since the publication of the project materials (1966 onwards) it has been open to any school to adopt the course and subsequently to enter pupils for the special examination. It should be added that many schools, especially those in the independent sector, are obliged to teach the course in much less than five years and that the flexibility inherent in the course makes this readily possible.

This article is concerned with a description of the growth of the 'O' level Chemistry project up to July 1970 and with a comparison of Nuffield and non-Nuffield Chemistry adopters on the basis of selected variables. Data from this comparative study are reviewed in the light of the general theory of diffusion of innovations put forward by Rogers (1962).[1]

The growth of Nuffield 'O' level Chemistry courses

In 1968, the Schools Council sponsored an investigation into the adoption by schools and support by LEAs of Nuffield 'O' level *science* materials. 108 of the 120 authorities who supplied

---

Acknowledgement

I am most grateful to the University of London Schools Examinations Department for supplying me with the necessary statistical material. The conclusions, ideas and opinions expressed in the article are, of course, entirely those of the author.

[1] Rogers' tentative paradigm of the adoption of an innovation by an individual within a social system postulates that the processes leading to adoption or rejection (a) are influenced by a number of 'antecedents' which reflect the cultural norms of the individual and the system, and (b) follow a number of identifiable stages each of which is governed by factors related to the innovation itself and to sources of information about it.

data reported that schools in their area 'used Nuffield materials' and estimated the total cost of making the transition to Nuffield methods at not less than £1·1m (Nuffield Science Teaching Project, 1969). The investigation also indicated that the 'percentage of grammar and comprehensive schools using the materials is greater than 43 per cent', but warned that the obstacle to further adoption of Nuffield science courses was predominantly lack of finance. Many local authorities were apparently able to support only one Nuffield science course, i.e. Physics, Chemistry or Biology, per school.

The Schools Council survey did not employ a decisive criterion for measuring the adoption of Nuffield courses and it is in some ways surprising that *only 43 per cent* of secondary schools used Nuffield materials of one sort or another when so much money has been spent on developing and producing the course materials which clearly are of use in many 'non-Nuffield' situations. In the case of the Chemistry project, it would be extraordinary if any secondary school did not make 'some use' of the visual aids, texts, experiments or apparatus associated with the Nuffield sample scheme. What is clear is that much less than 43 per cent of grammar and comprehensive schools have entered pupils for the special 'O' level examination. In the case of Chemistry, the figures for the period 1965-70 are recorded in Table 1, together with the corresponding total entries for 'O' level Chemistry throughout England and Wales. The rate of growth suggested by the figures is presumably responsible for Kerr's plea (Kerr, 1967) for more centralized control of the curriculum. Given that five years have not elapsed since the publication of the materials, any judgment about the future of the project would be premature, but it has been forecast that the 'numbers of Nuffield candidates will not become very large' (McKenzie, 1969). It is therefore interesting at this time to note not only the number but also the geographical distribution of those schools which are classed as adopters of the 'O' level Chemistry project by reason of having entered pupils for the special Nuffield examination of summer 1969.

Table 1: Entries for 'O' level Chemistry

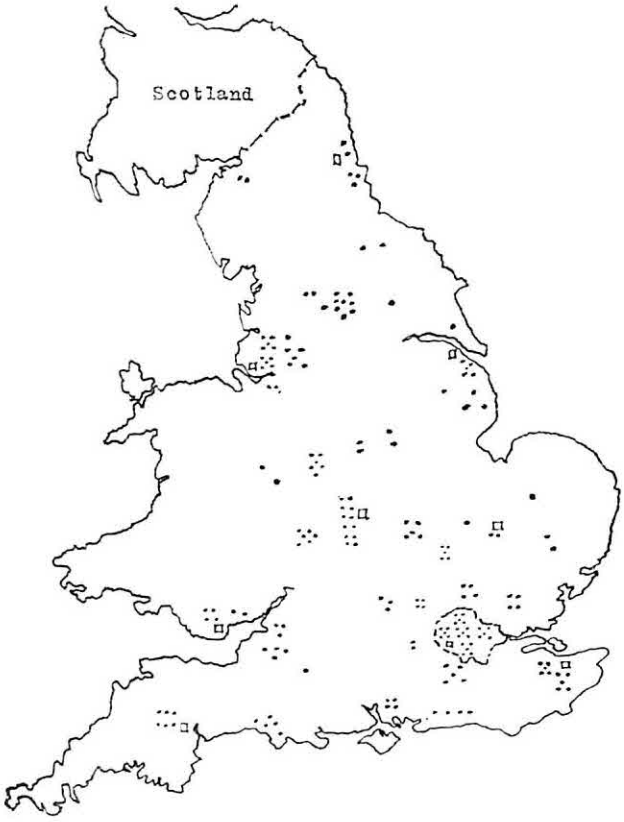
YEAR	NO. OF ENTRIES NUFFIELD CHEMISTRY	TOTAL 'O' LEVEL ENTRY, CHEMISTRY
1965	170	77,509
1966	677	75,415
1967	1,050	76,798
1968	1,860	78,539
1969	3,765	N.A.
1970	6,572	N.A.

During the development of the Chemistry project, trial schools were grouped around a number of 'area leaders' in various parts of the country. Figure 1 illustrates the distribution of adopter schools as measured by the 1970 examination entry. It is clear that (i) there are still many areas of the country where no candidates have yet been entered for the special Chemistry examination, (ii) adopter schools tend to be grouped around the original 'centres of interest', i.e. the location of the area leader and the group of schools for which he was responsible, (iii) there is an uneven distribution of adopter schools along a horizontal axis drawn through Birmingham. Despite local concentrations of adopter schools, e.g. in Northumberland, most of the adopter schools, at summer 1970, lie in the Midlands or Southern part of the country. According to Rogers (1962), the extent of 'promotional efforts by change agents is directly related to the rate of adoption of an innovation'. On the assumption that an area leader's effectiveness as a change agent will be greater in schools he knows best, it might be expected that the early adopters of Nuffield 'O' level Chemistry would be grouped around the location of the original area leader. However, other factors and organizations act as 'promotion agents', e.g. in-service courses, and these findings suggest that it might be worthwhile exploring the relationship between the provision of relevant in-service courses and the subsequent adoption of Nuffield 'O' level Chemistry in a given geographical area.

The adoption/non-adoption of Nuffield 'O' level Chemistry courses

Data for the 1970 examination entry were not available when this part of the study was undertaken so that it was necessary for the study of selected teacher and school variables to be carried out with schools who submitted candi-

Figure 1: Distribution of schools entering candidates for Nuffield 'O' level Chemistry, summer 1970.



• represents one school
☐ represents location of an area leader
Schools outside England and Wales are not recorded. The position of each school is accurate by county only.

dates for the 1969 Nuffield Chemistry examination. A questionnaire was sent to 80 schools and 65 usable replies were received from the heads of the Chemistry departments concerned. The questionnaire sought information about the qualifications and experience of these heads of departments within adopter schools. Although it is known that the attitude of a headmaster influences the attitude of his staff towards educational research (Johnson, 1966), and therefore possibly towards innovation, it was felt that the opinion of the Chemistry departmental head in a school carried considerable weight in any decision to adopt a Nuffield course and the departmental head was therefore regarded as the adopter for the purposes of this investigation (for a discussion of units of adoption in diffusion studies, see Katz, 1962).

The questionnaire also sought details of the size and type of school, of its sixth form and of the total *annual* expenditure for the Chemistry department in the schools concerned.

The geographical distribution of the 65 schools who had replied to the first set of questionnaires was known and identical questionnaires were sent to a sample of 100 schools who had not adopted the 'O' level Chemistry course. These schools were selected in such a way as to match as nearly as possible the constitution (LEA, direct grant, etc.) and geographical location of the 65 adopter schools. Eighty-four replies were received and the type and location of schools was such that, with one exception, every local authority represented in the sample of 65 was also represented in the second sample of 84 schools. (Schools in Northern Ireland and Scotland were excluded from this pairing exercise.) It was hoped that by matching samples in this way, difficulties arising from a comparison of schools operated by different agencies would be minimized.

The information obtained from the questionnaires was used to test the hypotheses that, in comparison with colleagues who had not adopted the Nuffield 'O' level Chemistry course by summer 1969, heads of Chemistry departments in adopter schools would be (i) academically better qualified; (ii) more likely to have undergone a course of professional training for teaching; (iii) in a better financial position to implement a new Chemistry course by reason of a larger *annual* grant available for Chemistry teaching. Two additional hypotheses were tested: (iv) that adopter schools were larger than non-adopter schools; (v) that adopter schools had larger science sixth forms than non-adopter schools.

Results

(a) *Nuffield Chemistry Teachers*

The respondents to the questionnaire were asked to state whether they had obtained a higher degree (either in Chemistry or in Education) and to give the class of their first degrees. Each degree class (I, II[i] etc.) was scored and the mean for each group calculated. There was no significant difference in the mean class (II[ii]) of the two groups of teachers. In the adopter schools (N = 65), 14 per cent of the departmental heads had a higher degree of some sort compared with six per cent in the sample of non-adopters (N = 84). Using a technique described by Chambers (1958), it was found that the observed difference between the proportions in each sample was less than three times the standard error and the difference between the two groups of teachers as far as higher degrees is concerned was not therefore regarded as significant.

The mean year of graduation for the heads of the Chemistry departments in each group was surprisingly close; 1953 for adopters and 1954 for non-adopters. In each case the mean was strongly affected by the presence of a small number of teachers who had graduated before 1940.

46 of the adopters (N = 65) had undergone a course of professional training compared with 44 (N = 84) of the non-adopters. Again, using Chambers' technique, this difference was not significant.

The questionnaire also provided information about the career patterns of the two groups of teachers, in particular of the number and duration of non-teaching appointments they had held (National Service was excluded). In the adopter group, 30 per cent of the teachers had worked in such occupations for a mean of 3·7 years compared with 27 per cent for 4·5 years in the non-adopter group. Both of these percentages seem high but confirm the information obtained in an earlier study (Jenkins, 1967). It is perhaps worth adding that one of the adopter teachers had been a headmaster before becoming a head of a Chemistry department and that both groups included women who had left and later returned to full-time Chemistry teaching.

(b) *Some Characteristics of Nuffield Chemistry Schools*

Respondents to the questionnaire were asked to state the total *annual* expenditure on Chemistry teaching in their schools but to exclude from this any money made especially available for particular purchases of Nuffield equipment, textbooks, etc. This total sum was then divided by the total number of pupils in the school to provide an estimate of the per capita expenditure on Chemistry within the school. It is recognized that this procedure is open to question but the different timetables of schools and the various pupil options made it impossible to obtain a precise figure for the number of pupils following Chemistry courses in any one school. Nonetheless, for the purposes of comparison it was felt that the procedure was viable even though it meant a slightly low estimate of the actual per capita expenditure in any given school. Comparison of the calculated per capita expenditure in adopter and non-adopter schools was undertaken using a technique quoted by Quenouille (1959), using a distribution free test of the difference in mean level between the two groups. The mean expenditure per pupil per year for the adopter group was 8·7 shillings compared with 5·5 shillings for the non-adopter group, a difference significant only at the five per cent level.

There seemed to be no significant differences in the overall size of the two groups of schools (see Table 2) although there was a difference in the proportion of pupils following science courses 'of any description' in the sixth forms of the adopter and non-adopter schools. The significance of this difference was attested by calculating the proportion of each group of schools with a science sixth which represented 45 per cent or more of the total sixth form population and testing the significance of the difference between the two proportions. This difference was found to be significant at the one per cent level.

Table 2: Comparison of adopters and non-adopters of Nuffield 'O' level Chemistry, 1969

TEACHERS	NUFFIELD ADOPTERS	NON-ADOPTERS
No. of teachers in sample	65	84
Mean class of first degree	II(ii)	II(ii)
Percentage with a higher degree	14%	6%
Mean year of graduation	1953	1954
Percentage with full-time experience in non-teaching posts	30%	27%
SCHOOLS		
No. in sample	65	84
Mean expenditure per pupil p.a. on Chemistry	8·7s.	5·5s.
Mean size of school	550	870
Proportion of schools with a science sixth form>45% of total sixth form	0·75	0·4

Discussion

Cottrell (1942) claimed that 'items of behaviour such as attitudes, traits, etc., studied apart from the context provided by the (would-be adopter's) definition of the situation' yield meaningless results. Unfortunately, it is necessary for research purposes to concentrate on a small number of variables within the adopter and non-adopter teachers and schools. The small scale investigation reported above suggests the following conclusions:

(1) There has been a steady increase in the number of schools which have entered pupils for the special examination in 'O' level Chemistry. The numbers of candidates have also increased.

(2) The adopter schools as at summer 1970 tend to be located near the original source of 'opinion leadership' which, in the case of the Chemistry project, could be identified with the project's area leaders, set up throughout the country during the development stage.

(3) Despite the evident weakness of using examination entry as a criterion of adoption, there are considerable areas of the country in which no school has yet submitted a candidate for the 'O' level Nuffield examination.

(4) The geographical distribution of adopter schools lends some support to Rogers' (1962) claim that 'schools located nearer to metropolitan cities are more innovative'. This, in the case of the Chemistry project, is presumably a consequence of locating area leaders in urban centres but, if Rogers' contention is generally valid, it suggests that the problems of implementation of curriculum materials may differ considerably from one part of the country to another.

(5) According to Rogers, 'earlier adopters have a more favourable financial position than later adopters'. This study suggests that any difference in annual expenditure on Chemistry teaching between adopters and non-adopters (some of whom are future adopters) is significant only at the five per cent level. However, this study has not explored the ease with which *extra* money is obtained or the degree of school control over expenditure. This latter element of local control may be especially important since flexibility of expenditure is clearly important in considering the implementation of a curriculum project. This study does not, however, support the claim that the best single predictor of innovativeness as far as Nuffield 'O' level Chemistry is concerned is 'educational expenditure per pupil' (Rogers, 1962).

The amount of money normally available within a school for teaching Chemistry is not unrelated to the size and type of school, although no logical relationship appears to exist and there is very considerable variation from one school or authority to another. A larger school allows more discussion with colleagues about the merits of a proposed change in curriculum content and method but size does not seem to be an important dimension in characterizing innovative schools as far as Nuffield 'O' level Chemistry is concerned. The fact that Nuffield-innovative schools are likely to have a larger number of pupils following science courses at sixth form level possibly has a number of explanations. A school which adopted Nuffield 'O' level Chemistry in 1966 might have generated an enthusiasm sufficient to carry larger numbers of pupils into its sixth form; better 'O' level results in Chemistry may have followed from the extra preparation required of a teacher following a new teaching scheme and these results could lead to a larger science sixth; innovative schools are characterized by a strong tradition of science teaching and this was a factor encouraging adoption of the 'O' level project materials, etc.

(6) There was no difference in the mean year of graduation and quality of first degree of adopter and non-adopter teachers. There is thus no support for the view that 'earlier adopters are younger than later adopters', or that 'earlier adopters have a type of mental ability different from that of later adopters' (Miles, 1964; Rogers, 1962). It is not clear what is meant by 'mental ability' in this context but this study suggests that Chemistry teachers who had adopted the Nuffield 'O' level Chemistry course by the summer of 1969 were, by academic and professional training and by experience of non-classroom employment, not significantly different from the teachers who had not adopted by that date.

In the light of the 'null' results discussed above, it would seem necessary to look elsewhere for factors governing the willingness of a head of a Chemistry department to implement Nuffield 'O' level courses in his school. Rogers' assertion that an individual's willingness to innovate varies with the norms of his social system on innovativeness is clearly worth exploring in greater detail, perhaps with the aid of a time scale for measuring a school's innovativeness (Mort and Pierce, 1947). The 'norms' of independent as opposed to LEA schools are likely to be particularly worthy of study, since independent schools perhaps have the nearest factor to a 'profit motive' operating in education in recent years: the need to be seen to be progressive and liberal in outlook.

It is recognized that the decision to adopt Nuffield 'O' level Chemistry is not simply that of the head of a Chemistry department. Decisions about curriculum change are made at a variety of levels from national to personal. This fact, in conjunction with the findings of this small study, seems to suggest that if progress is to be made in understanding the factors governing the implementation of curriculum development in schools, it is likely to come from an exploration of the decision-making process in a small number of schools rather than from a study of the personality variables of adopter and non-adopter teachers.

References

CHAMBERS, E. G. (1958). *Statistical Calculation for Beginners*. Cambridge: Cambridge University Press.

COTTRELL, L. S., Jnr. (1942). 'Analysis of Situational Fields in Social Psychology', *Amer. Soc. Rev.*, **7**, 370-382.

HALLIWELL, H. F. ed. (1966). *Nuffield Chemistry—Introduction and Guide*. London: Longmans/Penguin.

JENKINS, E. W. (1967). 'The attitude of teachers to the introduction of Nuffield Chemistry', *School Sci. Rev.*, **49**, 167, 231-242.

JOHNSON, MARGARET E. V. (1966). 'Teachers' attitudes to Educational Research', *Ed. Res.*, **9**, 1, 74-79.

KATZ, ELIHU (1962). 'Notes on the Unit of Adoption in Diffusion Research', *Sociol. Inquiry*, **32**, 3-9.

KERR, J. F. (1967). *The Problem of Curriculum Reform*. Leicester: University Press.

MCKENZIE, A. E. E. (1969). 'The Future of the Nuffield Science Teaching Project at 'O' level', *Educ. in Science*, **3**, 33, 24-26.

MATHEWS, J. C. (1967). 'The Nuffield Foundation Science Teaching Project —VII: "O" level Chemistry examinations', *School Sci. Rev.* **49**, 167, 21-30.

MILES, M. B. (1964). *Innovation in Education*. New York: Columbia University Press.

MORT, P. R. and PIERCE, T. A. (1947). *A Time Scale for Measuring the Adaptability of School Systems*. New York: Columbia University Press.

THE NUFFIELD SCIENCE TEACHING PROJECT (1969). *Educ. in Science*, **32**, 20-23.

ROGERS, EVERETT M. (1962). *Diffusion of Innovations*. New York: Free Press of Glencoe.

QUENOUILLE, M. H. (1959). *Rapid Statistical Calculation*. London: Griffin & Co.

TEACHERS' ATTITUDES TO EDUCATIONAL CONTROVERSIES

T. E. CROMPTON *Edge Hill College of Education*

This study is based on the expressed attitudes of practising teachers; it is claimed that this procedure may be more valid than the usual one of testing the attitudes of students or teachers on advanced courses. 'Educational controversies' refers to teachers' attitudes to streaming, 11 plus selection and corporal punishment; scores on these scales were correlated with scores on the Oliver 'Survey of Opinions' scales and the 'Study of Values' scales. Suggested interpretations of the matrix of relationships are offered. A small group of teachers on a full-time in-service course completed the 'educational controversies' scales at the start and completion of their course: the scores changed to what is interpreted as a more 'progressive' pattern.

The study of teacher and student-teacher attitudes has a respectable ancestry, especially in the United States, and there seems to have been a revival of interest in this country. The recent report *Streaming in the Primary School* (Barker Lunn, 1970) highlighted the great importance of the beliefs of the individual teacher and especially the need for these beliefs to be in the same general direction as those held by the headteacher. A belief in the value of ability grouping seems to render a teacher less effective if he works in an unstreamed school than if he works in a streamed school. The identification of teacher attitude as a significant variable would appear to be a valuable methodological advance over some previous studies of the relationship between children's attainments and type of school organization.

A short report on the scales used to determine teacher attitude has been published (Tuppen, 1966). One interesting feature of this work is that it was done with practising teachers. Most British studies appear to have been done with student teachers (Kissack, 1956; Steele, 1958) or with experienced teachers on advanced courses (McLeish, 1969). A finding common to this type of work is that during training students appear to change their attitudes in a more 'progressive' direction, but that during their probationary year they tend to become more 'traditional'. Support by implication for this view comes from Butcher (1965) who found that students and teachers on advanced courses held opinions which were described as Radical, Tenderminded and Naturalistic while practising teachers held opinions described as Conservative, Toughminded and Idealistic. (A description of these terms is provided below.)

Hence, trying to infer information about teacher attitudes by studying only the attitudes of student-teachers may be unsound, as these students not only change their attitudes when they enter full-time teaching but, as Morrison and McIntyre have suggested (1967 b), their attitudes change according to the prevailing educational philosophy in the school to which they are appointed. Only Tuppen (1966) and Butcher (1965) have published work done with practising teachers who were working in schools when their attitudes were measured. The work reported in this article was done with 170 teachers, of whom 160 were in service when their attitudes were studied.

Method and scales

Three scales were produced on lines advocated by Likert (1932) and dealt with Attitudes to

Streaming, Selection for Secondary Education and the Use of Corporal Punishment in schools. A high score on each of these scales suggests opposition to the three practices. Test-retest reliability of the final form of the scales was calculated from students' scores. The values obtained were 0·80 for the Streaming scale, 0·83 for the Selection scale and 0·90 for the Corporal Punishment scale, all values being significant beyond the 0·01 level. An attempt was made to gain some information about validity by administering the scales to ten teachers who were on a full-time course at a college of education. The course tutor was asked to make an independent assessment of his students' attitudes to the three controversies. The correlation coefficients which were obtained between the tutor's ranking and a rank order derived from students' scores on the three scales were: Streaming, 0·81; Selection, 0·70 and Corporal Punishment, 0·49. The first two values are significant ($P > 0{\cdot}05$).

In addition to these three scales, respondents were asked to complete the Oliver 'Survey of Opinions' scales. Details of the construction of these scales have been published (Oliver and Butcher, 1962) but it will be useful briefly to describe the type of attitude that the scales seek to measure. The 'Conservative-Radical' dimension seems to be closely related to political Conservatism and Radicalism. 'Idealism-Naturalism' seems to attempt to place teachers on a subject-centred/child-centred continuum. The Tenderminded-Toughminded dimension calls for slightly more interpretation: it was originally termed 'Theoretical-Practical' and there are grounds for feeling that this may be a better description if only to avoid confusing 'Toughmindedness' with beliefs about corporal punishment, as there does not appear to be any necessary connection in attitude in spite of the superficial semantic relationship (Kissack, 1956; Morrison and McIntyre 1967 a). A teacher who is Tenderminded (or Theoretical) seems to seek no end of education external to the process, while his Toughminded colleague looks to the process for external justification, such as a vocational goal. Thus, teachers working in technical education seem to score at the Toughminded end of the dimension while teaching in grammar schools seems to produce scores at the Tenderminded end.

A third set of scales was employed in the investigation. This was the 'Study of Values' in the Revised British Edition 1965, the relevant reference for which is Richardson (1965). The Study of Values aims to measure the relative importance of six basic interests or motives in personality: the Theoretical, Economic, Aesthetic, Social, Political, and Religious, a classification based upon a formulation suggested by Spranger. Theoretical man is an intellectual and Economic man is interested in wealth and what is useful; Aesthetic man seeks for form and harmony in life and the Social man is distinguished by the value he places on people; Political man is interested in power and Religious man accepts the existence of a God—the interpretation of scores on this last scale seems to be simpler than Spranger originally proposed (Lurie, quoted by Eysenck, 1954).

Eysenck has suggested (1954) that opinions may be held in a four-level hierarchy. The first level consists of opinions expressed on the spur of the moment which may never be repeated. At the second level are to be found habitual opinions expressed about specific topics which are likely to be reasonably stable; such opinions may be those measured by the scales dealing with Streaming, Selection and Corporal Punishment in this investigation. At the third level may be found clusters of opinions from the second level. These may be indicators of a true attitude and Eysenck cites ethnocentrism as an example of this level of opinion-holding; in terms of educational attitudes, this level may be represented by opinions elicited in response to the Oliver scales. At the fourth level are to be found 'ideologies', the most stable of all, fundamental aspects of personality organization; possibly this level is represented by scores derived from the Study of Values. On this point, Evans has remarked (1965): '. . . the fact that the Study of Values has survived for thirty years, during which time a major World War with the consequent disruption of society has occurred, suggests that it it not dealing merely with superficial levels of personality organization.'

Results

The 170 teachers who completed the scales may be categorized by type of school (Table 1).

In terms of the distribution of teachers

Table 1: Distribution of teachers by type of school

	N	% of Total
Primary Schools		
Infant school teachers	18	10·59
Junior school teachers	64	37·65
Secondary Schools		
Modern schools	34	20·00
Comprehensive schools	30	17·65
Grammar schools	24	14·11

nationally, the category of primary school teachers is slightly under-represented.

Inter-scale product-moment correlation coefficients were calculated, except between scores on the sub-scales of the Study of Values which are not independent of one another and are indicated on the matrix by the symbol n/a.

Various comparisons were made of groups within the sample, such as primary and secondary teachers, teachers above and below age 35, and so on. In view of the small numbers involved in some of these comparisons, report differences have to be treated with great caution, especially where teachers working in different types of school are involved in the comparison. Only differences reaching significance at the 0·01 level are reported. Men teachers achieved a pattern of scores which seemed to indicate that they were more 'progressive' than women teachers. They were more opposed to selection, more Tenderminded and more Naturalistic, but not significantly more Radical. On the study of Values, men scored higher on the Theoretical, Economic and Political scales while women had the advantage on the Aesthetic and Religious scales. This set of differences is very close indeed to those reported by Richardson (1965, Table 7) based on a sample of 650 men and women.

The division of the sample between primary and secondary teachers produced further significant differences. The secondary teachers had a more 'progressive' pattern of scores, being more opposed to 11 plus selection and corporal punishment and being more Tenderminded, Radical and Naturalistic. Primary teachers scored more highly on the Religious value scale.

Table 2: Inter-scale correlations

	1	2	3	4	5	6	7	8	9	10	11	12
1. Streaming	:											
2. Selection	55*	:										
3. Corporal punishment	39*	47*	:									
4. Theoretical	05	14	06	:								
5. Economic	—02	—01	—24*	n/a	:							
6. Aesthetic	—05	03	15	n/a	n/a	:						
7. Social	03	04	18†	n/a	n/a	n/a	:					
8. Political	07	23*	12	n/a	n/a	n/a	n/a	:				
9. Religious	—03	—24*	—15†	n/a	n/a	n/a	n/a	n/a	:			
10. Tendermindedness	10	32*	38*	15	—09	11	14	04	—18†	:		
11. Radicalism	50*	65*	66*	12	—14	12	25*	16†	—27*	46*	:	
12. Naturalism	41*	54*	59*	18†	03	03	17†	21*	—32*	51*	62*	:
	1	2	3	4	5	6	7	8	9	10	11	12

Decimal points omitted. *Sig. 0·01 level; †Sig. 0·05 level

An age cut-off point of 35 was selected, teachers below that age being described as 'young' and those over 35 as 'old'. Only one significant difference was found: older teachers were more opposed to 11 plus selection than their younger colleagues. However, when the mean scores of a group of teachers working in comprehensive schools were compared with the scores of a group of teachers working in grammar schools (N=29 and 24 respectively) a large number of significant differences were found. As would be predicted, the comprehensive school teachers seemed more opposed to 11 plus selection than their grammar school colleagues; they were also more opposed to streaming and corporal punishment and were more Radical and Naturalistic. They also had a higher score on the Political value scale. The grammar school teachers scored higher on the Economic value scale.

A group of teachers (N=10) entering a one-term course full-time at a college of education had their attitudes to Streaming, Selection and Corporal Punishment measured at the commencement of the course, before they had taken part in any seminars or group discussions. Their attitudes to the same controversies were measured at the end of the course. Scores on all three scales had moved in the 'progressive' direction; on the Streaming scale the difference was significant at the 0·01 level, the difference on the Corporal Punishment scale at the 0·05 level, but the difference on the Selection scale, although in the same direction, was not significant.

Discussion

The mean scores of this group of teachers on the various scales do not exhibit any signs of great deviation from either notional 'norms' as represented by the scale mid-points or from scores in other work derived from the administration of the Oliver scales and Study of Values scales to teachers and students. This is not to assert, of course, that the results from this sample may be legitimately regarded as representative of the teacher population, but simply that the pattern of scores does not lend credence to the idea that the sample is highly atypical.

The matrix of correlation coefficients suggests a number of interesting relationships. Of the 51 values, all but 12 are positive; all but one of the negative values occur in associations between the Economic and Religious scales and the measurements of educational opinion. Twenty-seven of the values reach at least the 0·05 level of significance. All scores on the 'educational controversies' scales are positively and significantly related, suggesting the presence of a general factor which might be tentatively labelled 'progressivism'. The fairly high value of 0·55 between scores on the Streaming and Selection scales will occasion little surprise. Indeed, it may be felt that the association should be closer than this: both processes may be perceived as selection, one within a school and the other between schools. The higher group mean on the Selection scale as compared with the Streaming scale may suggest that opposition to selection has been rendered 'respectable' by its longer history. Certainly, there is some evidence (March, 1967; Cox, 1969) that many comprehensive schools stream their pupils in the traditional way. In this case, at least, one may presume that some headmasters accept the end of the 11 plus but retain their faith in streaming.

On the Oliver scales, the consistently lower degree of relationship between the Tendermindedness scale and scores on the 'educational controversies' scales as compared with Radicalism and Naturalism may be noted. A correlation of only 0·38 between Tendermindedness and a rejection of corporal punishment in schools seems rather low and at variance with any 'commonsense' interpretation of tendermindedness in education. Kissack (1956) reported a similar low relationship between his corporal punishment scale and scores on the Tendermindedness scale. As suggested earlier, if this scale is regarded as a measure of a teacher's commitment to intrinsic objectives in education then the problem is diminished. There seems to be no logical reason why a teacher who firmly believes in education as an end in itself should not beat a boy who does not appear to share this belief!

The Study of Values correlates modestly with the scores on the six educational variables. The consistently negative correlations between scores on the Religious value and scores on the scales measuring educational opinion call for some comment. It was suggested earlier that Religious man may be much simpler than the mystical and complex character suggested by Spranger. His values seem closer to doctrine and practice and they appear to be negatively correlated with 'progressivism' in education. The largest of the negative correlations (−0·32) occurs between scores on the Religious value and those on Oliver's Naturalism scale, which claims to measure the degree of a teacher's child-centredness; this is in keeping with the low, negative but significant relationship between the rejection of corporal punishment and the holding of religious beliefs. It is not clear why the holding of religious beliefs should be associated with an apparent lack of 'progressivism' in education unless one is prepared to generalize into educational matters the generally perceived relationship between, say, the Roman Catholic church and social conservatism. Slight support for this is provided by the negative relationship between scores on the Radicalism scale and scores on the Religious value scale.

Scores on the Political value scale correlate positively with scores on the educational variables and three reach a significant level. Political man is interested primarily in power: in educational terms this may be interpreted as a drive for promotion. It may be tentatively suggested that an espousal of 'progressive methods', the dominant educational trend of the moment, may be seen as the best way to achieve such promotion, although such espousal may be unconsciously related to the promotion drive rather than being consciously, and, perhaps cynically related. Indirect support for this suggestion comes from the almost zero correlation between scores on this scale and scores on the (Rejection of) Streaming scale. Perhaps a rejection of streaming is still a minority view and has not established itself as part of the 'main stream' progressive movement in education. The much higher correlation between scores on the Political value and scores on the (Rejection of) Selection scale is also in keeping with the proposed interpretation of the Political value in educational terms.

All between-group differences must be treated with great caution because of the small numbers involved and because the sample is not a stratified one. One of the uses to which these differences might be put is to construct a preliminary model or profile of the attitude structure of the 'progressive' teacher, and, by implication, of his notional opposite, the 'traditional' teacher. The 'progressive' teacher appears to be radical and naturalistic in terms of educational philosophy; in terms of the Tendermindedness scale he is not so easily classified and his position on this dimension may be determined by the type of school in which he works: if in a grammar school or the upper part of a comprehensive school, especially if he is a graduate, he will probably score towards the tenderminded (theoretical) end of the dimension. On the other hand, a non-graduate, working in a secondary modern school, may score towards the other end of the dimension, although equally 'progressive' in outlook, believing in the value of vocational teaching and 'outward-looking, Newsom-type' courses. (In the sample, graduates had a significantly more Tenderminded score than non-graduates.) The 'progressive' teacher is suspicious of the claimed virtues of streaming and, more confidently, he opposes 11 plus selection; it seems likely that he will try to teach without resorting to corporal punishment. In terms of personal values, he will be ambitious (his score on the Political scale is interpreted in this way) but not very religious; he does not hold the values represented by the Economic scale, his radicalism permitting him to give new ideas a fair trial, although he may have a shrewd idea that the path to promotion could lie through curriculum innovation. The other scales of the Study of Values do not appear to discriminate between 'progressive' and 'traditional' teachers.

The interpretation of the changes in attitude scores recorded on the group of teachers undergoing in-service training needs to be done cautiously. Although they appeared to move in a more 'progressive' direction it may be unsound to attribute this change to the effects of the course: the course may have had no effect or, more likely, merely accelerated an existing trend. An attempt was made to set up an informal control group, matched with the in-service group on such variables as sex, age, length of service, qualifications and type of school. Ten respondents were eventually chosen who matched the in-service group on age, sex and length of service. In five cases, however, qualifications or type of school could not be matched, so that the control is very imperfect. Mean scores on the three educational controversies scales were calculated; in the case of the in-service group, their mean score at the commencement of the course was the one used. On the Streaming scale, the in-service group had the more 'progressive' scores, but the difference did not reach significance; on the Selection scale, the same group also scored more highly in the 'progressive' direction and this time the difference was highly significant ($P > 0{\cdot}001$); on the Corporal Punishment scale there was an insignificant difference, this time the control group scoring in the 'progressive' direction. There is no evidence here that is remotely conclusive, but it seems a reasonable hypothesis that an investigation of the attitudes of teachers electing to enter in-service training might reveal that they had a pattern of scores marking them as more 'progressive' or 'radical' than colleagues not applying for admission to such courses. In any case, the evidence presented here suggests that one ought not to be too ready to attribute to the course all the attitude change that may be recorded.

References

BARKER LUNN, J. (1970). *Streaming in the Primary School*. Slough: NFER.

BUTCHER, H. J. (1965). 'Attitudes of Student Teachers to Education: a Comparison with the Attitudes of Experienced Teachers', *Br. J. Soc. and Cl. Psych* **4**, 1.

COX, M. (1969). *One School for All*. Slough: NFER.

EVANS, K. M. (1965). *Attitudes and Interests in Education*. London: Routledge and Kegan Paul.

EYSENCK, H. J. (1954). *The Psychology of Politics*. London: Routledge and Kegan Paul.

KISSACK, M. (1956). 'The attitude of training college students towards corporal punishment.' Unpub. MEd thesis, University of Manchester.

LIKERT, R. (1932). 'A technique for the measurement of attitudes', *Archives Psych., June, No. 140*.

MARCH, L. (1967). 'Which are the unstreaming comprehensive schools?' *Where*. Sept.

MCLEISH, J. (1969). *Teachers' attitudes: a study of national and other differences*. Cambridge: Institute of Education.

MORRISON, A. and MCINTYRE, D. (1967a). 'Educational Opinions of Teachers in Training', *Br. J. Soc. and Cl. Psych.*, **6**, 1.

MORRISON, A. and MCINTYRE, D. (1967b). 'Changes in opinion about education during the first year of teaching'. *Br. J Soc. and Cl. Psych.*, **6**, 3.

OLIVER, R. A. C. and BUTCHER, H. J. (1962). 'Teachers' attitudes to education', *Br. J Soc. and Cl. Psych.*, **1**, 1.

RICHARDSON, S. (1965). *Study of Values*. Revised Manual, British Edition. Slough: NFER.

STEELE, P. (1958). 'Changes in attitude amongst training college students towards education in junior schools.' Unpub. MEd thesis, University of Manchester.

TUPPEN, C. J. S. (1966). 'The measurement of teachers' attitudes', *Ed. Res.*, **8**, 2.

THE PLOWDEN REPORT'S RECOMMENDATIONS FOR IDENTIFYING CHILDREN IN NEED OF EXTRA HELP

NEIL FERGUSON, PATRICIA DAVIES, ROY EVANS, PHILLIP WILLIAMS[1]
Department of Education, University College, Swansea

THE INADEQUACIES of an area or school-based approach to the problem of identifying children who are in need of extra help at school are illustrated with data collected from the infant reception classes of 12 schools. These sample schools were each nominated for one of three categories according to the characteristics of the areas which they served. The two local education authorities involved each nominated an advantaged school, a settled working-class school, and four deprived schools. The socio-economic and developmental characteristics of the infant reception class intakes of these categories of school type were examined. The findings were that categories of school type are not as socio-economically disparate as may often be assumed; and that there appears to be a sizeable relationship between school type and the school entrants' developmental characteristics, but there are too many exceptions to this general trend to justify the use of school characteristics for identifying 'children at risk'.

The Plowden Report recommends the identification of educational priority areas as a means of bringing extra help to children who suffer social and economic disadvantages and thus run a high risk of failing at school. This report, as well as a great deal of recent research in this country—Douglas (1964), Fraser (1959), Wiseman (1964)—has demonstrated a relationship which exists between social class and the achievement level of pupils. Volume 1 of the Plowden Report (pages 57-59) makes eight suggestions for the identification of educational priority areas which are, in effect, measures of the social status of the locality being assessed. These Plowden recommendations are summarized in Table 1. Their effect is to make an estimate of the socio-economic status characteristics of a school based upon census data collected from the area which it serves. The recommendations of the Report are based upon the relationship between school type (i.e. educational priority area school) and pupils' achievement which has also been investigated previously in a number of American studies—Herriot (1966), Sexton (1961). It is the adequacy of this approach to the problem of identifying children in need of compensatory education which is discussed in the present study of the infant reception classes of 12 schools.

The help of two local education authorities (one with schools in a large conurbation and the other serving small industrial communities in largely rural surroundings) was sought to investigate the questions raised by the designation of priority areas and schools as means of helping the needy. Each authority nominated four schools which it believed were situated in areas characterized by obvious social and educational disadvantages, one school in a stable working-class community and one school in a prosperous suburban residential area. Of the 12 schools thus provided eight (with about 550 infant reception entrants) have been called 'deprived', two (with an intake of around 100) are referred to as 'settled working class', and the remaining two schools with an intake of over 150 reception class entrants are described as 'advantaged' schools. It was believed that this attempt to bias the sample by asking each of the authorities concerned to nominate four deprived schools

---

[1] Now at the Faculty of Education, The Open University, Bletchley.

Table 1: Plowden criteria for the identification of educational priority areas

1. Social class characteristics
2. Size of family
3. Supplement in cash or kind from the State
4. Overcrowding and sharing of houses
5. Poor attendance and truancy
6. Proportions of retarded, disturbed or handicapped pupils
7. Incomplete families
8. Children unable to speak English

Table 2: Some specific measures which reflect the Plowden criteria for the identification of educational priority areas

1. Percentage of fathers in social class 4 and 5 occupations
2. Percentage of families with four or more children undergoing or not yet started full-time education
3. Percentage of infants receiving free meals
4. Percentage of households occupied at a density of greater than one and a half members of the family per room (excluding kitchen and bathroom)
5. Percentage of new entrants absent without explanation during their first term at school
6. Percentage of new entrants with a brother or sister receiving special education help in a special class or through remedial teachers
7. Percentage of entrants whose mother or father is missing from the household
8. Percentage of new entrants with a parent whose mother tongue is a language other than English (excluding Welsh)

would ensure that about 100 children in need of some kind of special help at school would be made available for study by the research team of the Schools Council Research and Development Project in Compensatory Education, which is based at University College, Swansea.

Socio-economic characteristics of pupils

The Plowden recommendations which are summarized briefly in Table 1 are suggestions which must be translated into specific measures before they may be used to identify priority areas. Table 2 lists some specific measures which were used to quantify the Plowden criteria.

It is realised that these measures are only approximations to the Report's suggestions, but are probably quite similar to measures which an authority wishing to comply with the Plowden recommendations might make from available census data. The intake of each of the 12 schools was then assessed on each of the eight measures of Table 2. The percentage frequencies in each category were used to rank each school with respect to the other 11 schools in the sample. The summation of these ranks (see Table 3) has been used to re-rank the schools (Kendall, 1948, 'Rank Correlation Methods'), thus providing a broad estimate of the relative deprivation attibutable to the families of the reception class children in each school.

Table 3 shows that two deprived reception classes (5 and 8) have a smaller proportion of children with occupational category 4 and 5 fathers than either of the reception classes nominated as settled working class. The reception class of school 9 (settled working class) has a larger proportion of families with four or more children than ten of the other 11 schools, while the reception class of schools 11 (advantaged) and 5 (deprived) both have the same proportion of large families. In schools 6 and 8 (both deprived) no reception class entrant is living in overcrowded conditions (unlike a third of the reception class intake of one of the settled working-class schools). Similarly there are schools nominated as deprived which had no families in which the mother tongue of either parent is a language other than English, deprived reception classes in which none of the pupils' brothers or sisters are receiving special educational help, very few incomplete families, few free meals and no unnecessary absenteeism during the first term at school. A feature which emerges is the comparatively deprived nature of an infant reception class of one of the two settled working-class schools (9) (ranked ninth). Its reception class has many children from large families and many whose parents are not first language English speakers. There is also a considerable amount of overcrowding and a number of siblings in receipt of special help at school, yet the families are stable (see column 8) and few of them are of low social status. As column 2 of Table 3 indicates, the schools were equally divided between a large midland conurbation and small industrial communities in largely urban surroundings. With the exception of school 4 (rated eighth) the schools in smaller communities have fewer disadvantaging factors in their reception class pupils' home background than their urban counterparts. This was expected and the surprising feature is, perhaps, the fact that a school in a small town can

Table 3: The ranked distribution of the incidence of disadvantaging factors applied to the reception class intakes of twelve infant schools

School No.	LEA Description	Males in 4 & 5	Families with 4 or more Children	Density 1½ or more Persons per Room	Parents with Mother Tongue other than English	Brother or Sister in Receipt of Special Education	Incomplete Families	Free Meals	Absent without Explanation	Sum of Ranks	Final Position
1	Deprived (conurbation)	11	10	7	10	12	3	8	10	71	10
2	Deprived (conurbation)	9	9	9	8	4	10	11	11	71	10
3	”	9	7	11	6	1	9	10	1	54	7
4	Deprived (small communities)	12	11	8	1	9	11	9	6	67	8
5	”	3	3	6	1	7	7	4	7	38	5
6	”	8	6	1	9	7	7	4	1	43	6
7	Deprived (large conurbation)	7	8	12	11	10	12	12	12	84	12
8	Deprived (small communities)	4	5	1	6	1	1	6	9	33	4
9	Settled Working Class (large conurbation)	5	11	10	12	11	6	7	8	70	9
10	Settled Working Class (small communities)	6	4	1	1	4	3	3	5	27	3
11	Advantaged (large conurbation)	1	2	1	5	1	3	1	1	15	1
12	Advantaged (small communities)	2	1	1	1	6	1	2	1	15	1

bring together so many families with social and educational problems.

It would seem that a local education authority can, without much difficulty, nominate its schools for one of three gross categories (deprived, settled working class or advantaged). The judgements, although largely accurate (see Table 3), are not however without their anomalies. The first objection to a global approach to the problem is that categories of school type are not homogeneous with respect to either social class characteristics or incidence of disadvantaging factors in the home circumstances of their pupils. The second objection is that the distribution of developmental characteristics is not sufficiently related to school socio-economic status to justify the Plowden approach to the identification of a need for extra help.

Relationship between developmental maturity and school attended

A battery of 14 developmental psychometric measures was administered individually to the infant reception class entrants of the eight deprived, two settled working class and two advantaged sample schools. These tests were a series of individually administered perceptual tasks (e.g. auditory discrimination and visual perception), language tasks (e.g. English Picture Vocabulary, reading readiness) and motor tasks (gross motor co-ordination, copy forms). The battery was known to be reliable (its test-retest reliability over a period of 14 days was $>0{\cdot}9$) and a useful predictor of later school attainment. When complete test data had been collected on 689 sample children, the principal components of the 14 tests were calculated. The first component was found to account for 52 per cent of the variation in developmental test scores and has been interpreted as representing a 'general intellectual functioning' or 'maturity of development' dimension in the data. The component one scores were then used to obtain a rank ordered distribution of all sample children according to their level of intellectual maturity. The top hundred and bottom hundred scores on this column of ranked scores were then examined. Table 4 summarizes the frequency of occurrence of

Table 4: Distribution of children by school type in the top and bottom hundred ranked component scores of the first component of the scores of a battery of developmental tests

	ADVANTAGED	SETTLED WORKING CLASS	DEPRIVED
No. of children in the sample	155	102	432
Expected frequency of occurrence in any hundred	22·5	14·8	62·6
Observed frequency in top hundred	49	6	45
Observed frequency in bottom hundred	4	20	76
Value of χ^2 (V = 1)	46·4	7·1	7·8

children from each school type in both these high and low scoring groups.

The critical value of χ^2 for one degree of freedom is 6·63. Thus the hypothesis that the children of deprived, settled working-class or advantaged schools are distributed in the top and bottom hundred ranked component scores by chance is rejected. This simple analysis provides quite a dramatic illustration of the advantage of children who live in prosperous residential districts. The disproportionate distribution of intellectual development in schools serving areas with very different socio-economic and cultural characteristics has been demonstrated many times before. What is not sufficiently emphasized is the fact that many children in deprived areas enter school extremely well-equipped to deal with the demands of the reception class of the infant school. Despite the fact that these high-achieving children who attend deprived schools are disproportionately few, their numbers in the general population are numerically large. Similarly, the distribution of school type in the bottom hundred ranked component scores shows that a larger than expected number of children in deprived schools and an even greater proportion of settled working-class children are included in this group. Thus, of all children attending schools not nominated for a deprived category by their respective local authorities over nine per cent perform as badly as the worst deprived school entrants and this includes 2·6 per cent of the intake of advantaged schools. It should further be emphasized that these findings are derived from a disproportionate judgement sample in which eight of the 12 infant reception classes were intakes to deprived schools.

A more child-centred approach to identification than that suggested by Plowden is recommended. Individual identification methods make it possible to measure both the cause of the problem of deprivation in the home and the result of the deprivation in terms of retarded development in the child. It is expected that the use of measures of both types would provide a basis on which to identify potential school failures or 'at risk' children irrespective of the area in which they live or go to school. In the present study it was found that there were inconsistencies in the local authority's nomination of schools for deprived and non-deprived categories. There were also many exceptions to the assumption that school entrants who live in deprived areas and attend deprived schools will be less well-equipped to deal with the demands of the infant school than entrants to non-deprived schools. If, however, infant reception class teachers were to use routinely the means to identify children with poor home conditions and inadequate development of those skills upon which the child's future progress at school depends, then a direct approach to the problem would seem possible. The advantages come not only from the teacher's increased knowledge of the child, but from the fact that she can use this knowledge to direct the school and the local authority's attention to the fact that extra help should be brought to those children and their families who have been identified for a category of educational risk. This means that available financial and manpower resources can be concentrated where the need is greatest.

References

DEPARTMENT OF EDUCATION AND SCIENCE (1967). *Children and Their Primary Schools*. London: HMSO.

DOUGLAS, J. W. E. (1964). *The Home and the School*. London: MacGibbon and Kee.

FRASER, E. (1959). *Home Environment and the School*. London: University of London Press.

HERRIOTT, R. E. and ST. JOHN, N. H. (1966). *Social Class and the Urban School*. New York: Wiley.

KENDALL, M. G. (1948). *Rank Correlation Methods*. London: Griffith & Co. Page 87.

SEXTON, P. (1961). *Education and Income*. New York: Viking Press.

WISEMAN, S. (1964). *Education and Environment*. Manchester: Manchester University Press.

ETHNIC RELATIONS IN A GIRLS' COMPREHENSIVE SCHOOL

T. S. ROBERTSON and T. KAWWA *National Foundation for Educational Research and Ealing Child Guidance Clinic*

FRIENDSHIP patterns in an urban girls' secondary comprehensive school with nearly 30 per cent immigrant pupils were studied by a sociometric technique. Pupils were found to choose their friends most frequently from their own ethnic groups, but this was more marked in the lower streams and older age groups than in the upper streams and younger age groups. In the upper streams and the sixth form some preference was found, but immigrant pupils tended to be well integrated with British girls in complex friendship groups.

In the second report of the National Foundation for Educational Research Comprehensive Education Project (Monks, 1970), the friendship choices of pupils in relation to their ethnic origin were briefly mentioned (Kawwa and Robertson, 1970). The present study is a more detailed examination, in one of the original schools, of the data on friendship choices. It supplements also the work of Kawwa (1963 and 1965).

The Elsie Stevenson Comprehensive School

'Elsie Stevenson' is a pseudonym for a smallish comprehensive school situated in the Inner London Education Authority, housing 604 girls in pleasant surroundings. Like most ILEA comprehensive schools examined by this Project, it is creamed of the most able pupils (Monks, 1968 and Evison, 1970). Comparison of the parental occupation of the pupils with the 1966 Sample Census figures for the London borough in which the school is situated shows that the intake reasonably reflects the employment social pattern of the borough, except that the upper and lower social classes are somewhat under-represented. In its internal organization the school has a streamed four-form entry. There is a sixth form of 37 pupils, there being no barriers to entry to the sixth.

The pupils were classified as follows: British, 415; European, 20; Mixed White, 16; West Indian, 119; Asian, 20; African, 7; Mixed Coloured, 7. Lower streams have a greater proportion of non-British pupils than higher streams and, in fact, some forms have more non-British than British pupils. The homes of the non-British were fairly well scattered through the catchment area, with only slight concentration here and there.

In Spring 1967 a questionnaire was administered by one of the authors to all the pupils who were present in the school on one day. Responders were asked, among other things, to name one girl in the school whom they considered to be a very good friend. This was taken as the primary criterion of friendship. They were also asked to name one whom they found it difficult to befriend, giving reasons in each case. Further questions were asked about school heroines in different categories—'represent the school in a quiz', 'wish you were like', 'you would choose to see the headmistress to register a complaint' and so on.

Although the criterion 'a girl whom you consider to be a very good friend' cannot be taken as absolute evidence that a friendship exists, it expresses at least the child's feelings about whom she would like as a friend, and when the supposed friendship is reciprocated it is reasonable to conclude that the friendship actually exists.

First-form friendships

The ethnic composition of Form 1B was: British, 27; European, 1; Mixed White, 4; West Indian, 2; Asian, 2.

To consider first the minority of four coloured pupils, two formed a reciprocated pair or diad, with a third linked by secondary criteria. The other coloured pupil was a withdrawn child[1] and had no friends. One of the foreign girls, a Greek-Cypriot, formed a reciprocated friendship with a British girl from another first-year form, and of the 'mixed white' category, one was absent and another (English/Maltese) formed a reciprocated friendship with an East Indian girl from another form. The others were members of British friendship groups. Most of the British girls formed reciprocated friendships with British girls living close to them and in the same form or, as in one case, in another first form. A few made unreciprocated choices to British girls, others were involved in more complex friendship groups, notably a compact group of six girls (one from another first-year form) living close together.

Three of the 36 pupils were named frequently as 'difficult to make friends with'. They tended to be aggressive, but were not isolates. Two were British, and one an English/Maltese.

A well-behaved, able British girl seems to have been a class 'star', for she was chosen twelve times as a representative 'to see the headmistress about something you as a class would wish to complain about' and five times as 'the person you would choose to represent the school in a quiz'. She was also chosen three times as 'the girl you would choose to tell your secrets or troubles to'. Among the six pupils chosen more than once in either of these categories was one of the coloured girls—a Jamaican, who was chosen by a British girl and an Indian as 'representative in a quiz'. A Jamaican girl was chosen as confidante ('tell secrets or troubles') by two other coloured girls.

To summarize the racial position in 1B, the four coloured girls comprised one isolate and a group of three friends, who were not entirely divorced in their relations from the white girls in the class. A Greek-Cypriot found a reciprocated friendship with a British girl in another form and the 'mixed white' group tended to integrate in the friendship groups of the British girls. Most British girls formed reciprocated friendships based on domiciliary proximity, or were involved in more complex friendship groups of predominantly British girls.

In Form 1A, there were fewer simple 'white only' groups than in 1B, and more complex inter-relations. One girl, a Jamaican, was unpopular with five girls (mostly British) for arguing, shouting, being spiteful and without a sense of humour. There were ten coloured girls in 1C and, again, a fair amount of integration. In 1C also a Jamaican was unpopular[1], named eight times as being disagreeable, stubborn, unfriendly and naughty. The D stream was smaller, had a greater proportion of coloured pupils (9 coloured to 14 white) and showed a much simpler pattern of friendships, for most girls formed friendship pairs with pupils of their own ethnic group.

Third-form friendships

The girls considered so far were eleven-year-olds who had been in the school for a term and a half. The next stage looked at was the third form, whose girls would be more mature, and most would have had over two years in the school for friendship patterns to crystallize. In 3A and 3B non-British pupils were comparatively few. They tended to belong in friendship groups which included also British girls. Two British girls in each form appeared unpopular, as in other forms, for their overbearing rather than retiring characters. In each class Asian girls were popular choices as class representatives, even though British girls were also frequently chosen.

The cleavage between white and coloured in 3C and 3D was marked. No white girl chose a coloured as a 'very good friend' and only one coloured girl chose white. British occupied nearly all the popular situations in 3C, as form or school representatives, but in 3D a West Indian was popular with British and coloured alike as 'form representative'.

---

[1] Where statements are made about children being withdrawn or aggressive these are based upon remarks made about them on the questionnaires completed by their fellow pupils.

[1] See OAKLEY (1968), and BOWKER (1968), p. 68, for discussions of behavioural difficulties of immigrant children; and EVANS and PAGE (1967), p. 10, for special reference to West Indian girls.

Friendships in 4D

No class below the fourth form had fewer British than non-British girls, but in 4D non-British girls outnumbered British by 16 to 13. Here, ethnic cleavage was almost complete, except that West Indian girls were frequently chosen as form representatives by white and coloured alike.

Fifth-form friendships

The fifth form was divided into three streams. The top stream had only five coloured pupils, in the middle stream there were seven and in the bottom stream the 17 coloured pupils outnumbered the white.

By the fifth form the influence of home proximity had diminished and, on study of the friendship maps, friendships spanning considerable distances appeared more numerous than they were lower down the school. With few exceptions, the white and coloured pupils segregated and it is worth examining one of these few exceptions, a friendship group which involved three girls (one British and two West Indian), and which had many interesting features[1]. Its members had different interests and hopes. The British girl was interested in swimming, clothes, good looks, animals and her boyfriend and wished to become a shorthand typist; her secondary friendships were directed towards both members of the triad. One West Indian found the other West Indian who had, in fact, named her as a good friend, 'difficult to make friends with because she is arrogant and spiteful', but perhaps this was a temporary disenchantment, for the latter chose her as 'a very good friend' and wished for personality characteristics which included humour, common sense and 'enough love, when someone hurts you to be able to forgive and forget'. Her secondary friendships were divided between the other two members of the group. The two West Indians seemed more studious than the British girl. One spent her spare time in '1, reading; 2, reading; 3, reading' and wished to be an engineer in the WRAF. The other divided hers between work on a school project, a Saturday job and going to church, and wished to be an air hostess. The first West Indian named three other West Indians in her form on secondary friendship criteria but the other gave all secondary friendship choices within the triad.

Sixth-form friendships

The upper and lower sixth appeared to operate as separate entities, for no primary and only one secondary criterion friendship spanned them. In the lower sixth only a few out-of-form choices were made.

Friendship relations in both upper and lower sixth were complex. There were only two British girls in the upper sixth and they formed a diad. However, examination of secondary criterion choices showed that both integrated well with other members of their class.

In the lower sixth most pupils were connected with one another directly or indirectly (through friendship choices on the primary or secondary criteria). Friendships were not closely related to home proximity.

A Jamaican in the lower sixth was unpopular with British and West Indian alike, within her own form and outside it. She was said to be hot-tempered, selfish, hard to communicate with and unco-operative. One of the few references to racial intolerance was made when a British girl in her form wrote: 'She has a chip on her shoulder about white people, she herself is coloured, this affects her whole attitude to life'. The fact that she was unpopular with other West Indians seems to belie this interpretation.

Sixth formers as 'stars' for younger pupils

Below the sixth form, 161 girls looked up to sixth formers as 'the girl you would choose to represent the school' and 29 named sixth formers as 'the girl you wish you were like'. Although 35 coloured girls chose white girls to represent the school in a quiz, only four white girls chose coloured girls. No white girl chose a coloured sixth former as 'a girl I wish I was like' but approximately equal numbers of coloured girls chose white or coloured sixth formers as 'a girl I wish I was like'.

Summary

Although this comprehensive school is creamed, and therefore does not receive a fully representative intake, it is probably characteristic of comprehensive schools with considerable numbers of coloured pupils, for the urban areas with large immigrant populations have generally retained some selection (see Monks [1970], p. 76 for an example). Ability grouping tends to place more coloured pupils in the lower than in the upper streams, but all forms have some coloured pupils, and a greater proportion of coloured than white seem to stay on into the sixth form, which has no academic restriction on entry. The distribution of coloured immigrants within the catchment area does not seem to have marked influence on the friendship pattern, for there are no concentrations of immigrants living in particular areas. The social class of the immigrants is similar to that of the British pupils, so bias due to social class preference is unlikely.

---

[1] For a critical study of personal similarities and friendship, see Abdel Rahmen (1961).

Detailed examination of friendship patterns reinforces the conclusion of an earlier report (Kawwa and Robertson, 1970), namely that white pupils tend to choose their friends among white, coloured among coloured. However, further conclusions can be drawn in this one school, as follows:

1. Exceptions to this generalization are frequent.

2. As pupils progress through the school the in-group preference tends to become stronger.

3. The upper streams at all age levels tend to be more integrated than the lower in nearly every way. Friendship groups are more complex, with more interactions between pupils than in the lower streams, and more inter-relation between white and coloured. In the lower streams, more simple pair groups are found.

4. As pupils grow older, friendships become wider-ranging—geographically and in cutting across form boundaries. Re-grouping in subject classes in school could account for some of this trend.

5. In some forms cleavage between white and coloured is very marked, especially in the lower streams of the upper forms. In earlier studies, Kawwa (1963 and 1965) found that as numbers of coloured pupils increased in a form, cleavage became more marked. Feeley (1965) found a stronger cleavage in lower streams, and Bowker (1968) (p. 67) suggests as possible explanations, (i) the small numbers of coloured children in A streams, (ii) their more fluent English and greater anglicization, and (iii) the greater awareness by A-stream pupils of the unrespectable nature of colour prejudice.

6. On the criterion of form and school representatives, there is some in-group preference; on the criterion of 'girl you wish you were like', in-group preference is much more marked.

7. Very few cases of conscious colour-awareness or prejudice were discovered in 600 individual questionnaires.

8. Girls seem to be unpopular if they are over-aggressive or withdrawn, irrespective of their colour. Because a greater proportion of coloured pupils (particularly West Indians) are ill-behaved (see also Oakley [1968], Bowker [1968] and Evans and Page [1967]), there are frequently one or two unpopular West Indian girls in a form.

References

Abdel Rahmen, A. S. (1962). 'Characteristics of friends and leaders'. Unpublished MA thesis, University of London.

Bowker, G. (1968). *Education of Coloured Immigrants*. London: Longmans.

Evans, P. C. C. and Page, R. B. LeP. ed. (1967). 'The education of West Indian immigrant children'. London: NCCI.

Evison, P. (1970). 'Attainment Survey'. In: Monks, T. G., ed. (1970). *Comprehensive Education in Action*. Slough: NFER.

Feeley, N. R. (1965). 'An investigation of the social integration of coloured immigrant children in selected secondary schools'. Unpublished Dip Ed dissertation, University of Liverpool.

Kawwa, T. (1963). 'Ethnic prejudice and choice of friends amongst English and non-English adolescents'. Unpublished MA thesis, University of London.

Kawwa, T. (1965). 'A study of the interaction between native and immigrant children in an English school, with special reference to ethnic prejudice'. Unpublished PhD thesis, University of London.

Kawwa, T. and Robertson, T. S. (1970). 'Social Mixing and Friendship Choices'. In: Monks, T. G. ed. (1970). *Comprehensive Education in Action*. Slough: NFER.

Monks, T. G. (1968). *Comprehensive Education in England and Wales*. Slough: NFER.

Monks, T. G. ed. (1970). *Comprehensive Education in Action*. Slough: NFER.

Oakley, R. ed. (1968). *New Backgrounds: The Immigrant Child at Home and at School*. London: OUP.

THE INFLUENCE OF FEEDBACK ON TEACHERS' PERFORMANCE

E. C. WRAGG *Department of Education, University of Exeter*

Four groups of student teachers taught short lessons to small classes of children. According to the micro-teaching format developed at Stanford University they then retaught a similar lesson approximately one hour later to a comparable but different group of children. In the intervening one-hour period they received various kinds of feedback about the first lesson they had given. Analysis of the second lessons showed that the students who had both seen videotapes of their first lesson and been given information about their interaction with the class were likely to lecture less, elicit more spontaneous talk by the children and be rated higher by them.

The assumption that teachers will modify their behaviour in the light of feedback received about their own teaching is built into all teacher training procedures which make use of techniques such as micro-teaching or interaction analysis. The micro-teaching technique, in which student teachers receive a feedback after short periods of teaching is described below. Yet the amount of research devoted to probing the effectiveness of different kinds of feedback is comparatively slight.

All teaching situations provide some kind of feedback for the teacher, and he may or may not be sensitive to it. Direct and unsystematic feedback is provided in the form of cues such as yawning, glazed expressions, excitement in the class, shuffling feet. Less direct feedback can be provided to the teacher by an observer, who clearly will have made some distortions when he reports his own perceptions of the lesson. Video or sound tapes of lessons also provide unsystematic feedback, though here again there is a loss from the original situation, in that the teacher only sees what has been filmed, or only hears sound without any visual cues in the case of sound tapes.

Interaction analysis

Systematic feedback can be presented by the use of interaction analysis techniques such as the Flanders technique (1965) which divides verbal activity into ten categories. Each category has a number, but no scale is implied by the numbers. The procedures for using the system are quite straightforward (Amidon and Flanders 1963). An observer watches a teacher during a lesson and every three seconds he writes down the category number of the interaction he has just observed. He records these numbers in sequence in a column, writing approximately 20 numbers per minute, so that after, say, 25 minutes, he will have a sequence of approximately 500 numbers. The observer has first been trained for several hours from tapes, videotapes and live situations if possible, until he shows considerable agreement with other trained observers. Inter-observer agreement can be calculated by a formula suggested by Scott (reported in Flanders, 1965), and it takes only ten or twelve hours of training to produced inter-observer agreements with an experienced observer of 0·8 or above. If, of course, the activity is not appropriate, i.e. a film being shown, everyone working in silence, or if the observer cannot hear, then he stops tallying.

The ten categories

Teacher Talk

Indirect influence

1. Accepts feeling: accepts and clarifies the

feeling tone of the students in a non-threatening manner. Feelings may be positive or negative. Predicting and recalling feelings are included.

2. Praises or encourages: praises or encourages student action or behaviour. Jokes that release tension, not at the expense of another individual, nodding head or saying 'uh huh?' or 'go on' are included.

3. Accepts or uses ideas of student: clarifying, building or developing ideas or suggestions by a student. As teacher brings more of his own ideas into play, shift to category five.

4. Asks questions: asking a question about content or procedure with the intent that a student answer.

Direct influence

5. Lectures: giving facts or opinions about content or procedure; expressing his own idea; asking rhetorical questions.

6. Gives directions: directions, commands, or orders with which a student is expected to comply.

7. Criticizes or justifies authority: statements, intended to change student behaviour from non-acceptable to acceptable pattern; bawling someone out; stating why the teacher is doing what he is doing, extreme self-reference.

Student Talk

8. Student talk-response: talk by students in response to teacher. Teacher initiates the contact or solicits student statements.

9. Student talk-initiation: talk by students, which they initiate. If 'calling on' student is only to indicate who may talk next, the observer must decide whether student wanted to talk. If he did, use this category.

10. Silence or confusion: pauses, short periods of silence and periods of confusion in which communication cannot be understood by the observer.

Collecting and recording data

Suppose, for example, a teacher comes into the class and says 'Open your books at the map on page 60', then the observer writes 6, signifying a command. If he then goes on to ask 'What is the country coloured green?', the observer writes a 4. If silence follows the question he writes a 10, and when someone replies 'I think it's Finland, but I'm not sure', he writes 8. Now the sequence of command, question, silence, answer, is shown by the observer's set of four numbers 6-4-10-8.

When the observer has collected several hundred such tallies he needs to be able to present these to the teacher in an understandable form. There are many ways of doing this as described by Amidon and Flanders (1963), but the quickest and most convenient is simply to show the percentage totals in each category. This way the teacher can see at a glance the balance of talk in each of the categories for any lesson, compare different lessons, and make decisions about future classes.

Some work has been done investigating the effects of such systematic feedback with both experienced and trainee teachers. Kirk (1964) found that elementary school student teachers trained in the system were more 'indirect' in the classroom than those not trained. Similar findings are reported by Hough and Ober (1966). These findings are, however, associated with a strong belief by the supervisors that 'indirect' teaching has been shown to be more effective than direct, and it is probably this belief by the supervisor which leads to the student teacher changing his behaviour rather than the act of seeing his own behaviour categorized.

Micro-teaching

Micro-teaching is a technique for training teachers developed at Stanford University. A student teacher teaches a short lesson to a group of children and then has an interval of time in which he can receive feedback about the lesson. He could see a videotape playback, talk with a supervisor or with fellow students, or read comments on his lesson written by the children. He could have all these forms of feedback, or any combination of two, or one form only. The hope is that when he goes on to teach the same sort of lesson to a different group of children some 30 minutes later he will have benefited from the feedback and will teach better. This format is called the 'teach-reteach cycle' and Stanford claim it to be a very effective way of training teachers. It does, however, assume that videotaped feedback is useful, but this is an assumption made by every teacher training department which shows students videotapes of their lessons.

Allen and Ryan (1969) describe the research in micro-teaching completed so far. Acheson (1964), for example, has explored the effects of different types of supervisor on student teachers, and Ryan (1966) has investigated the influence of children's written comments on students' subsequent re-teach lesson.

The Exeter research

The experiment described below was conducted at Exeter University as part of a research project sponsored by the Social Science Research Council. The aim was to see what effect different kinds of feedback—systematic and unsystematic, visual and non-visual—would have on the behaviour of student teachers.

Sixteen student teachers were selected according to supervisors' ratings given during the three-month teaching practice period. Four had been rated 'above average', eight 'average' and four 'below average'. The 26 students were put evenly into four groups. Each student teacher prepared a small ten-minute lesson and taught it to a group of ten children. One hour later they retaught it to a different group of children who were from the same class in the same nearby school. In the meantime, however, the four groups of student teachers had received different types of feedback about the lesson.

Group 1 received both television and Flanders interaction analysis feedback.

Group 2 received television feedback only.

Group 3 received Flanders interaction analysis feedback only.

Group 4 received no feedback.

To control for the possible 'supervisor' influence, each student teacher who received television feedback simply watched the replay on his own with no comments. Flanders interaction analysis feedback was provided in the form of percentage totals of each category used. The students were familiar with the Flanders system and so knew the meanings of the categories. They did not know any research findings based on the system, and so were not being deliberately pointed in any particular direction.

After each teach and re-teach lesson the children rated the lesson on overall appeal to them on a seven-point scale based on the Stanford Teacher Competence Appraisal Guide. Examination of these showed that the children's ratings correlated r=0·4 with supervisors' ratings given during the previous three-month teaching practice.

Results

Group 2 (television feedback only), Group 3 (interaction analysis only) and Group 4 (no feedback) showed ratings on the re-teach almost identical with those given on the first teaching. Group 1 (television and interaction analysis feedback) showed an increased rating of nearly 13 per cent on the re-teach. Incidentally the groups of children were spread evenly around the treatment groups to cancel out the possible differences in generosity of rating.

In addition, interaction analysis data were collected on all lessons, both teach and re-teach. Analysis of all the 6,400 tallies collected is shown in Table 1 as percentage distributions for all student teachers for both teach and re-teach.

The first striking feature is that there is amazingly little change on the re-teach. Only category 5 (lecture), showing a decrease of four per cent and category 8 (children's talk in response to the teacher), showing an increase of four per cent, are noticeably different the second time round.

Further analysis of the percentage differences of

Table 1: Analysis of all 32 lessons, both teach and re-teach (total 6,400 tallies)

CATEGORY NO.	1	2	3	4	5	6	7	8	9	10	TOTAL
All Students Teach (%)	0	5	7	19	29	5	1	21	4	9	100%
All Students Re-teach (%)	0	5	7	18	25	5	1	25	5	9	100%

the four groups on the re-teach, however, shows a slightly different picture, if one takes any category showing a change of more than three per cent.

Group 1 (television plus interaction analysis feedback) shows a nine per cent decrease in lecture (category 5) but a seven per cent increase in children's spontaneous talk (category 9).

Group 2 (television only) shows a five per cent decrease in lecture (category 5).

Group 3 (interaction analysis only) shows a three per cent increase in praise (category 2), a nine per cent decrease in lecture (category 5) and a five per cent increase in children's talk in response to the teacher (category 8).

Group 4 (nil feedback) shows a six per cent decrease in questioning (category 4) and a seven per cent increase in lecture (category 5).

Clearly interaction analysis feedback reduces the amount of straight lecturing quite noticeably, as does television, whereas no feedback tends to increase it. Similarly there are increases in children's participation after interaction analysis feedback which do not occur on any significant scale elsewhere.

Summary and conclusions

The tentative findings of this experiment are that when student teachers re-teach a lesson after a one-hour interval to a similar group of children it tends to be largely the same both in terms of type of interaction, as measured by the Flanders interaction category system, and in terms of competence as judged by the children. The exceptions to this were that those teachers receiving both television and interaction analysis feedbacks were rated significantly higher by the children on the re-teach. They also lectured considerably less of the time and got much more spontaneous pupil response. Those receiving television only lectured slightly less. Those receiving interaction analysis feedback used slightly more praise, lectured much less and gained more pupil response (category 8). No feedback led to a decrease in questioning and an increase in lecturing.

If these findings are valid it seems to suggest that the combination of video playback and interaction analysis could be a powerful means both of influencing behaviour and of increasing competence.

There are, however, a number of questions posed by these preliminary findings. This experiment used only four different groups. If additional sources of feedback such as children's written reports are introduced this could lead to an eight-group design (one group getting all three forms of feedback, three groups getting any two, three groups getting one form, and one group getting no feedback). The introduction of a supervisor making comments or different styles of supervision would produce even more groups.

At this point one has to consider the question of optimum feedback. In the above experiment the nil feedback group merely had their own thoughts and memories of their perceptions at the time to influence them on the re-teach. As one adds to this, the question has to be asked, what is saturation point? Does the addition of supervisors' comments, video playback, interaction analysis and children's written comments simply provide the student with more and more information and hence enlarge his area of choice on the re-teach, or does it paralyse him after a certain point? Do some types of student teacher find a small amount of feedback sufficient, and do others need a greater amount and more variety? Is feedback of certain kinds a positive obstacle to some teachers?

These are questions we are hoping to tackle at Exeter, but they are basic ones, and until more is known about them the random saturation of teachers in training in all kinds of feedback may even be harmful.

References

FLANDERS, N. A. (1965). 'Teacher influence, pupil attitudes and achievement'. *Co-op. Res. Mono.* No. 12.

AMIDON, B. and FLANDERS, N. A. (1963). *The Role of the Teacher in the Classroom.* Minneapolis: Amidon.

KIRK, J. (1964). 'Effects of learning the Minnesota system of interaction analysis by student teachers of intermediate grades'. Unpub. doctoral dissertation, Temple University, Philadelphia.

HOUGH, J. B. and OBER, R. (1966). 'The effects of training in interaction analysis on the verbal behaviour of pre-service teachers'. Paper read at the Annual meeting of the American Educational Research Association, Chicago.

ALLEN, D. and RYAN, K. A. (1969). *Microteaching.* Reading, Mass.: Addison-Wesley.

ACHESON, K. A. (1964). 'The Effects of Feedback from Television Recordings and Three Types of Supervisory Treatment on Selected Teacher Behaviour'. Unpub. doctoral dissertation, Stanford University.

RYAN, K. A. (1966). 'The Use of Students' Written Feedback in Changing the Behaviour of Beginning Secondary School Teachers'. Unpub. dissertation, Stanford University.

THE EFFECTIVENESS OF SRA READING LABORATORY 2a WITH BOYS OF BELOW AVERAGE ABILITY

GORDON McG. SHIACH[1] *Aberdeen Child Guidance Centre*

TWO GROUPS of secondary schoolboys of below average academic ability were studied. The control group received traditional English teaching; the experimental group had experience of SRA Reading Laboratory 2a included in their English lessons. After nine weeks, no differences were shown in the reading performance of the two groups. Caution is advocated in the interpretation of this result.

Despite the extensive use made of Science Research Association Reading Laboratories in this country, there seems to be a relative poverty of reported studies on the efficiency of their use. This is surprising to the investigator because of the claims made by the authors, the cost of the material, the subjective views of so many teachers and the very design and unity of the reading laboratories which lend themselves to such studies. The following studies appear to form an exhaustive review of the field.

One investigation (Pont, 1966) was conducted in three Midlothian schools and appears to be the only one of its type reported in Scotland. It involved 205 children, used control and experimental groups, and attempted to find out the effect of using the SRA Reading Laboratories on both the reading quotient and verbal quotient of primary school children. Comparison of pre- and post-test results indicated that while both control and experimental groups made significant increases in reading quotient, the experimental groups made superior gains and it seemed that the SRA Laboratory was a valuable aid in improving silent reading. However, the follow-up tests seven months later showed that while the reading quotients of both groups were significantly higher than at the beginning, the improvement did not derive specifically from use of the SRA Laboratory, but more from carrying out the experiment. In other words the significant difference after the first post-test between control and experimental group was eliminated.

Another study of the effectiveness of the SRA material was done in five Aberdeen city schools (Aberdeen 1964). Unfortunately control groups were not used, and no details are given of the ability range of the subjects, nor is it stated whether the increases registered are significant statistically or even beyond expectation. So it is doubtful whether much importance can be attached to the results. However, after an experimental period of four months, the average increase measured on Schonell Test B with four classes ranged from nine months to one year, and measured on a Holborn Reading Test from six months to one year. These increases are impressive and would satisfy most teachers. Subjective evaluations of headmasters of primary schools involved in the experiment will be referred to later.

It had been hoped to get a picture of the work done on the labs throughout Scotland but it appears that Midlothian and Aberdeen are the

---

[1] Mr. Shiach is now an educational psychologist with Cambridgeshire and Isle of Ely County Council.

Acknowledgements

The investigator is happy to acknowledge the help and interest in this study of C. K. Mackay, Lecturer in Psychology, Aberdeen University; also to thank D. Kinmond, Deputy Headmaster of Powis Secondary School, and A. P. Urquhart, Headmaster, Old Aberdeen Secondary School, for their co-operation and encouragement.

only authorities who have attempted objective evaluations.

A most valuable and well-designed investigation has been conducted in Cambridgeshire (Moyle, 1966). The groups involved were drawn from two village primary schools and the study is most interesting for the wide range of abilities and ages covered. Generally Moyle concluded that there would seem to be little doubt that the SRA material had a marked effect on both mechanical reading attainment and level of comprehension. The design allows the investigator to make some comments as to regression. One group was re-tested three months after the first post-test. Of those, nine made above average progress, three regressed on previous scores, five remained stationary, and three made between one and three months' progress. Further testing after a greater lapse of time was unfortunately impossible.

A very extensive investigation in Western Australia (Neal, 1959) lends considerable weight to the SRA authors' claims. It is valuable because of the size of the sample (36 classes involving 971 students), the wide range of ability tested, and the wide range of types and locations of the schools. One of the main objectives of this study was to compare the improvements shown by retarded, average and advanced readers in order to determine the group for whom the SRA Laboratory was most beneficial.

From their results the investigators concluded that the improvements measured were significant for all the age ranges tested and that those pupils who were retarded in reading ability derived maximum benefit from the SRA Laboratory, while those of average or advanced ability also derived significant improvement. The investigators admit that it is probable that other organized approaches to reading in secondary schools may produce similar results to those obtained with the SRA Laboratory provided they can be organized as well and on similar principles. However, the advantages held by the SRA Laboratory are that the organization of the scheme of reading is already done, the effectiveness of the scheme is for many teachers proven and the Laboratories are readily available.

A Canadian study (Patterson, 1964) investigates more fully a point raised in the present study, namely that the effectiveness of the Reading Laboratory will probably vary according to the use made of it. With groups of non-academic ninth grade students, Group A received no instruction from SRA material, Group B used SRA material for just two periods per week, and Group C used it according to the recommendations of the authors. Results indicated that Groups B and C made gains of 16 months and 12 months respectively in comprehension. The investigator concludes that the experimental condition of Group B held most promise. It does not seem reasonable, in fact, to believe that the authors' recommendation can be appropriate for all levels of ability and the use to be made of the Laboratories must be decided by individual teachers. The value of studies such as this may be in suggesting how best to alter such recommendations.

The present experiment

This small project was an attempt to obtain information on comparative progress in reading by secondary boys of low academic attainment and to assess the effect of a short course using SRA materials on the reading performance of these boys.

The SRA Reading Laboratory

For a detailed description of SRA Reading Laboratories readers are referred to the publisher's advertising material. Simply, each Laboratory is a small box containing reading material presented on cards. Within each Laboratory there are three categories—power builders designed to improve understanding; rate builders, to improve the rate of reading without loss of understanding; and listening skills designed to improve pupils' attention to material presented orally. (This latter category was not subject to investigation here.) In addition, each pupil has his own record book in which answers and records of progress are kept. The carefully graded material is worked and marked personally by the pupils themselves, using appropriate key answer cards.

The design of the experiment was as follows: two classes of 12-year-old boys from very similar socio-economic and cultural areas in Aberdeen were involved. The experimental condition consisted of normal English curriculum practice plus intensive use of an SRA Laboratory (No. 2a). The control class continued with their usual English curriculum. Both groups were tested for reading ability before the experiment and after, and the results were compared and analysed to see if there was any significant difference between the groups which might be attributed to the use of the SRA Laboratory.

The control group (N=17) and the experimental group (N=20) were complete classes attending secondary schools in Aberdeen. Table 1 summarizes the distribution of verbal scores obtained by the two groups on Moray House transfer to secondary school tests. They would normally be described as classes of well below average ability (in terms of intelligence test performances, school attainments, and reading ability), from generally poor home backgrounds with a poor, even hostile attitude to school, and with a history of failure.

Table 1: Summary of age and verbal reasoning score for both groups

	Chronological Age		Verbal Reasoning Score on Transfer Test	
	Mean	SD	Mean	SD
Control group	12·7	3·7	75·6	7·3
Experimental group	12·8	5·6	75·6	7·64

No exhaustive analysis was made of the social or home backgrounds of either group, but from school records, and from discussion with teachers familiar with the area, there would appear to be no significant difference between the groups on these two counts. The schools from which the two groups are drawn are within 400 yards of each other in what is generally regarded as a 'depressed area' of Aberdeen. It was assumed, therefore, that the groups were well-matched in most respects.

Procedure

The investigation took place in the second term of the school session 1966-67. The dates of testing before and after were the same for both groups, the experimental period lasting in all nine weeks. Unfortunately, the exact times of testing could not be synchronized because of timetable differences. On both tests, the experimental group was tested between 9.40 and 9.55 a.m. (second period of the day and before mid-morning break) and the control group between 11.30 and 11.45 a.m. (the fourth and last period of the morning.)

The reading test used was the NFER Sentence Reading Test 1 by A. F. Watts. Although this test was designed for use up to the age of only 11·1, it was not felt to be an inappropriate test to use with these older boys because no account was to be taken of reading norms and the only interest was in raw scores.

During the nine-week experimental period, four periods of the week, each of 45 minutes, were given to the Laboratory, divided into three periods on power builders, and one on rate builders.

In such a limited study as this the teacher variable is obviously an important factor, and one impossible to measure. In this case the control group teacher was the head of a substantial English department with 15 years' experience. The experimental group teacher was a probationer. It can be assumed that if any advantage rests with either group, it rests with the control group, although it might also be said that the greater involvement of the experimental group teacher made up for his lack of experience. An attempt to place some control on the teacher variable was made by having discussions between the teachers involved. Equivalence of teaching methods, except for the difference being investigated, was aimed at.

Results and discussion

Analysis of co-variance of the data presented in Table 2 failed to show any significant difference between the groups on either pre-test or post-test; i.e. no differences in performance in reading can be shown between the groups over the period of study.

Table 2: Reading test scores for both groups before and after SRA instruction

	Pre-test		Post-test	
	Mean	SD	Mean	SD
Control group	23·54	4·22	23·87	3·32
Experimental group	24·05	5·85	25·15	5·66

A comparison of gains only would leave the question of the initial comparability of the groups unanswered. An analysis of co-variance is able to show the equivalence in both pre-test and post-test, and hence also answers the question of differential gain.

Although the objective results of this study give no support to the claim that use of the SRA Laboratory leads to improved reading performance, an improvement in the boys' attitudes to reading and to classroom work in general was subjectively noted. An earlier study (Patterson 1964) notes that results can vary quite widely according to intensity and length of use of the Laboratory. This present investigation may have failed to show differences because of the short duration of the experiment. Certainly, it has highlighted the urgent need for long-term research into teaching methods, particularly with the type of boy represented in this study.

References

ABERDEEN, CORPORATION OF CITY OF, EDUCATION COMMITTEE (1964). *SRA Reading Laboratory*. Report on pilot project. Unpublished.

MOYLE, D. (1966). 'A Report on the Use of the SRA Reading Laboratory 2a'. *Bulletin of the United Kingdom Reading Association.*

NEAL, WALLACE (1959). Report of an experiment carried out to evaluate the results obtained by using the Science Research Laboratory in Western Australian Schools under normal conditions of operation. Unpublished.

PATTERSON, J. (1964). 'A Comparison of the Science Research Associates (SRA) Reading Laboratory method and the Regular English Course for Non-Academic Grade Nine Students Relative to Remedial Teaching', *Ontario J. Educ. Res.* **7**.

PEARCE, C. R. (1967). 'A planned routine for teaching reading; the Science Research Associates Reading Laboratory'. *Teachers World* **3**, No. 2992.

PONT, H. B. (1966). 'An investigation into the use of the SRA Reading Laboratory in three Midlothian schools'. *Educ. Res.*, **8**, 3.

DOING A DEGREE AT A TECHNICAL COLLEGE (2): ATTITUDES OF STUDENTS

JANET ASKHAM *Department of Sociology, Aberdeen University*

THIS ARTICLE presents some of the findings of a research project on students who do degree courses at technical colleges. The aim was to explore the attitudes of students towards doing a degree at a technical college. It shows the mixture of positive and negative feelings and the slight swing towards a more favourable attitude during the first year, and points out that the most favourable attitudes occur where the college and the course are seen as fulfilling a function distinct from the universities. Where they do not, the technical college tends to be compared unfavourably.

A research project conducted in 1966/67 on behalf of the Advisory Centre for Education has shown[1] that the majority of students who do full-time degree courses at technical colleges would have preferred to go to a university, and that the majority of these students did in fact apply to a university but were eventually rejected. The indications from a small sample of personal interviews were that these students had become strongly motivated towards a degree course by strong pressure or encouragement from their parents and/or their school, by whom a degree was considered the most worthwhile goal to be pursued following the school career. Once the Universities Central Council on Admissions rejected them these students were unable to abandon the ambition for a degree and therefore seized eagerly upon the chance to pursue such a course, albeit at a technical college rather than a university.

These findings form the background to the second part of the investigation, in which students' attitudes to their technical college and course were investigated. The general hypothesis was that students who went to technical colleges in the belief that they were a second-best alternative to university would compare the technical college unfavourably with university (or what they felt a university would be like) and would therefore, at least initially, have a largely negative attitude towards the technical college. The samples and the method of investigation used to test this hypothesis are described more fully in the previous article. There were three sources of information. Firstly, a postal questionnaire was sent to a sample of students accepted for a technical college degree course in October 1966, following their request to either the Advisory Centre for Education's Information and Advisory Scheme or to the local authority Further Education Information and Advisory Service for details about degree courses and vacancies at technical colleges. (There were 275 replies from those who had used the ACE scheme and 112 from those who used the local authority scheme.) These students received their questionnaires after completing between one and two months of their degree course. Secondly, from the ACE samples, 30 students were selected for personal interview at the end of their first year at a technical college, when their attitudes were investigated in greater depth. Finally, a sample of students who had just completed the first year of their technical college degree course was contacted in June 1967, by means of selecting all relevant students from a small sample of technical colleges, chosen so as to be representative in terms of geographical region, size and type of degree course offered. These students also received a postal questionnaire (there were 257 replies).

---

[1] ASKHAM, J. 'Doing a degree at a technical college. Who does, and why? (I)', *Educ. Res.* **13**, 2, 151-4.

The students who were in their first term at a technical college were asked first what advantages and disadvantages, if any, they thought a technical college had over a university, from the point of view of a student taking a degree-level course. Just over a quarter (27 per cent) thought there were no advantages, compared with only six per cent who thought there were no disadvantages in a technical college compared with a university. A wide variety of factors were mentioned by those who saw either advantages or disadvantages in a technical college. Those most frequently stated are shown in Tables 1 and 2.

Table 1: Advantages of a technical college compared with a university (most commonly stated factors)

	%†
At technical college, students get more individual attention—there are smaller classes—more personal tuition	30
There are fewer distractions—more discipline—therefore students encouraged to (or have to) work harder	14
There is a freer/more friendly atmosphere—staff are more friendly—more staff/student contact	12
The course is more practical—more closely directed at industry—closer links with industry	10
The style of instruction is better	8

†The total from which these percentages are calculated is the total number of students who saw any advantages.

Table 2: Disadvantages of a technical college compared with a university (most commonly stated factors)

	%†
Lecturers and/or lecturing not as good as universities	21
Lack of/poorer facilities	21
The external degree	18
Lack of/poorer social and cultural life	17
Lack of/poorer library and studying facilities	15
Lack of accommodation	10
University degree carries higher status—employers prefer university degrees	8

†The total from which these percentages are calculated is the total number of students who saw any disadvantages.

When 31[1] of these students were interviewed personally at the end of their first year it was possible to investigate these attitudes more deeply.

It was found that, as one might expect, there was a correlation between how well the student was progressing with his course and how well he liked the technical college. Only one out of the 31, having failed her examinations, said that she had enjoyed her first year. Five who had passed their examinations had nevertheless decided to leave college. Most of the students hesitated to express their opinion of technical colleges as a whole, saying that they could only judge the merits of the college which they were attending, though most of them thought that in general all technical colleges were second-best compared with universities. Seven out of the 31, however, had so changed their opinions that they were now glad that they had gone to a technical college rather than a university. One college in particular was highly praised by two of these students, and it may be useful to give their comments in some detail. They felt that their college had a good reputation, especially among industrialists. They considered the lectures were of a high standard and that lecturers were approachable. Only a small number of students were doing their course, and they felt that this made for a good communal atmosphere. The studying facilities (such as the laboratories and the existence of a computer) were good. Their only complaints were the calling of the register at lectures—and the lack of girls. The remaining five students who were happy at their college also praised the good tuition, the informality of the staff, the good communal atmosphere and the fact that they had been able to make many friends. Their main dislikes were again the calling of the register at lectures, and also the fact that they were doing an external degree, the lack of social amenities and the drab buildings.

A further 12 students had largely unfavourable attitudes. They complained mostly about the teaching and about the social life and facilities. They thought the lecturers old and depressing, they disliked the lack of tutorials, the lack of what they called 'mental stimulation', and the fact that they were doing an external degree. The general feeling about external degrees was that there is some advantage in having to work hard in order to cover a wide syllabus, but that this is also a disadvantage because the work load is too heavy. They disliked the fact that there was no liaison between their lecturers and the examiners and that, therefore, their lecturers could give them no guidance on what subjects were likely to appear on examination papers.

---

[1] The sample consisted of 18 men and 13 women; 13 were aged nineteen at interview, 16 aged twenty and two over twenty. Twelve were doing Science courses, nine Social Science courses and 10 other Arts courses. All had originally stated that they would have preferred to go to university.

Further insight into the students' attitudes towards technical colleges was gained from the question 'Do you think the technical colleges, or the universities, or both should expand to take in the increasing numbers of young people who wish to do a degree nowadays?' About a quarter thought that both should expand, nearly a quarter that the technical colleges should expand, and a half thought the universities should take the expansion. Reasons for favouring technical college expansion were of two types: on the one hand, some students felt that the technical college had a special role to play in catering for the technologist and on the other hand some students felt that the technical college's special role was in catering for the slower worker and the student who is not quite up to university standard. Of those who thought that the universities should take the expansion, many felt that technical colleges should concentrate only on part-time and industrial courses. The resentment felt by these students became clearly visible. The following are some typical comments:

> 'So long as school-children are primed for university entrance the Government should make university places for them—for society's benefit and for their own contentment.'
>
> 'At technical college one feels second-class.'
>
> 'School pupils are continually bombarded with remarks about university being the ultimate and logical conclusion to their education, and so if many are deprived of this end a cynical attitude will build up in society.'

All but two of those favouring university expansion are doing Arts or Social Science courses, and conversely the majority of those who think either the technical colleges or both types of institution should expand are doing Science courses.

On the whole, therefore, the majority of these students (especially those doing Arts or Social Science courses) retain a largely unfavourable attitude towards doing a degree course at a technical college. Where these attitudes do not prevail it is in cases where the special functions of technical college are more clearly felt—either in the specialist college catering for the technologist or where informality of staff and the small number of students seem to aid the 'slower worker'.

Of the larger sample of students questioned after one year at a technical college, 70 per cent of those doing Arts or Social Science courses had applied for university compared with just under a half (47 per cent) of those doing Science courses. Similarly, three-quarters of those doing full-time courses applied for university compared with only 34 per cent of those doing sandwich courses. All students were asked whether or not they now felt that they would have preferred to go to university or to a technical college; 66 per cent of those doing Arts or Social Sciences would have preferred to go to a university compared with 45 per cent of those doing Sciences. (There is a similar difference between full-time and sandwich course students.) They were also asked if their preference had changed since being at technical college. The answers (in total only) appear in Table 3.

Table 3: Whether student would prefer to have gone to a university or technical college

NOW prefer	%	USED TO prefer	%
University	58	University	66
Technical college	22	Technical college	15
No preference	18	No preference	17
No answer	2	No answer	2
Total	100	Total	100

Only a slight change of opinion has taken place, therefore, but it has been in the direction of technical college preference rather than vice versa. This ties in with the fact that whereas just over half the students found their college much as they expected, 24 per cent had found it better than expected compared with 16 per cent who had found it worse than expected.

As with the first sample, the students were asked the advantages and disadvantages of a technical college compared with a university. Similar proportions thought there were either no advantages (22 per cent) or no disadvantages (6 per cent). Some advantages had assumed greater importance and others had declined somewhat. (The differences between the samples should be held in mind—especially the fact that the second sample contained a higher proportion of sandwich course students, and that they were questioned after one year at technical college rather than one month.) Fewer students now thought the technical college offered more personal tuition and individual attention (though this was still one of the most frequently stated advantages) and more students stressed the less academic and more practical nature of the course. The most frequently stated advantages are shown in Table 4.

Table 4: Advantages of a technical college compared with a university (most commonly stated factors)

	%†
Opportunity to do a sandwich course	13
There are smaller classes—more personal tuition	10
More practical/less academic approach	9
More personal attention	9
Industrial training—closer links with industry	8
More informal staff/student contact	7
Stricter supervision—students encouraged to work harder	7
Style of instruction better	6

†The total from which these percentages are calculated is the total number of students who saw any advantages.

As would be expected, a greater number of disadvantages were mentioned. (The average number of disadvantages stated by those giving an answer was 2·2.) The most important disadvantages seen by the students were very similar to those that were found by the sample questioned at the beginning of their first year. The only noticeable difference was that 'the lack of a social and cultural life' had swept to the top of the list, being mentioned by nearly 40 per cent of those who stated any disadvantages (see Table 5).

Table 5: Disadvantages of a technical college compared with a university (most commonly stated factors)

	%†
Lack of/poorer social and cultural life	37
Lecturers and/or lecturing not as good as universities	25
Lack of/poorer facilities	18
The external degree	16
Less academic atmosphere/less mentally stimulating	12
Technical college has lower status	12
Lack of community life—more 'nine-to-five' atmosphere	12
Lack of/poorer library and studying facilities	9
Lack of accommodation—lack of help with accommodation	8

†The total from which these percentages are calculated is the total number of students who saw any disadvantages.

Only tentative conclusions can be advanced from an exploratory survey of this nature. What is required is more information about individual technical colleges and their degree courses, in order to discover to what extent students' attitudes correlate with factors such as the degree of staff-student contact, the extent to which the slower worker is encouraged, the links with industry, and so on. Broadly, however, it is evident that where the technical college is seen to perform a function distinct from the university, the attitudes of students become more favourable. Technical colleges are seen in the least favourable light where the comparisons with universities are most obvious—for example, in the community life, the academic atmosphere and the facilities of various kinds.

OBSESSIONAL TRAITS AND ACADEMIC PERFORMANCE IN THE SIXTH FORM

PAUL KLINE *Department of Psychology, University of Exeter*

BASED on the work of Barron (1966) and Hudson (1966), the hypothesis is set up that science pupils are more obsessional than arts pupils. This is confirmed on a substantial sample of sixth-formers. However, it also appears that the possession of obsessional traits is a hindrance to performance in the sciences. The educational implications of these findings are discussed.

It is now generally accepted that personality factors influence academic performance from the primary school (Rushton, 1966) through to the university (Lynn, 1959) and afterwards in pursuit of the disciplines (Cattell and Drevdahl, 1955). The personality factors examined in these studies have been neuroticism, introversion-extraversion and the primary factors comprising these variables. This is largely because these are the personality dimensions measured by the two most carefully constructed and validated personality inventories—the Eysenck Personality Inventory (and the earlier Maudsley Personality Inventory) and the Cattell 16 Personality Factor Test.

Descriptions of the obsessional personality may be found throughout psychiatric literature (Lewis and Mapother, 1941; Masserman, 1946; Mayer-Gross, Slater and Roth, 1961). Typical traits are neatness, attention to detail, a love of exactitude, figures and cross-references, conscientiousness and determination in the face of difficulties. This syndrome is clearly similar to that of Freud's 'anal' character (1908). However, this has not been investigated directly because there is no accepted test of obsessional traits. Neither the EPI nor the Cattell 16PF test contain any such measure—an unfortunate omission in view of the emphasis on this personality pattern in psychiatric literature—nor does the Minnesota Multi-phasic Personality Inventory, perhaps the most widely used of all personality inventories.

Two studies, however, do support indirectly the claim that obsessional characteristics influence academic performance. Barron (1955) found that creativity was negatively correlated with the anal or obsessional scales of the Dynamic Personality Inventory (Grygier, 1961), while Hudson (1966) found that sixth formers studying science were less creative than those studying arts. The hypothesis that science pupils in the sixth form would be more obsessional than arts pupils was therefore derived from this work, and tested as set out below.

Sample

The pupils were from 11 schools of varying type in the north of England. Only those who had gained a place at university were included in the sample, to ensure that all subjects had reasonable prospects of success in their chosen fields. The pupils were classified into arts or science by the subjects studied for the A level of the GCE examination. Geography was regarded as a science where the other subjects were sciences, but otherwise as an arts subject. Biology and Mathematics were regarded as sciences and pupils who had studied 'mixed' subjects were left out of the analysis. It was clearly preferable to use a number of schools rather than one large school where a particular member of staff might favour pupils with a particular personality pattern. Eleven schools should obviate any such biases.

In the final sample there were 70 arts pupils and 92 science pupils.

Tests

Ai3, a test of obsessional traits developed by the author (Kline, 1969), was used for the survey. This scale has been shown to be valid in factor analytic studies with the 16PF test where it loaded on the second-order super-ego factor, with the EPI, of which it was independent, and with the MMPI, from the clinical scales of which it was again independent. Furthermore, it correlates significantly and positively with other obsessional scales—the Hazari scale (Hazari, 1957), the Beloff scale (1958) and the anal scales of the Dynamic Personality Inventory (Grygier, 1961). In addition it picks out subjects nominated as obsessional by raters. All this evidence is discussed by Kline (1969).

Results

A one-tail t-test of mean scores of science and arts pupils on Ai3 was carried out. The mean of the arts pupils was 16·26 with a standard deviation of 3·96. The mean of the science pupils was 17·77 with a standard deviation of 3·61; $t = 2{\cdot}60$ (significant at 0·01 level).

Discussion

The hypothesis that the science students would be more obsessional than the arts students was supported at the one per cent level. The one-tail test was appropriate in that the direction of the difference was hypothesized. Since more boys than girls take sciences it is possible to argue that this observed difference is a sex difference. However, there was no significant difference on this test between the sexes in this sample (a finding common to previous studies reported in Kline (1969). Therefore this difference could not have been due to sex. Science pupils in sixth forms are significantly more obsessional than their arts contemporaries. This result is further supported by the correlation between Ai3 and the 'interest in science' score of the Brook Reaction Test (Heim and Watts, 1966) found by the present author in a recent study among training college students (Kline, 1970).

Apart from the fact that Reich (1945) and Toman (1960) both regard obsessional traits as important in the make-up of scientists, these results make psychological sense in that the sciences clearly seem to need precision and orderliness and have clear distinctions between right and wrong. The arts subjects, on the other hand, characteristically lack these qualities, being concerned with value judgements and nice distinctions of style and quality. In addition, the claim of Hudson (1966) that scientists are less creative than arts students is, by implication, supported.

The educational implications of the fact that different personality types are attracted into different disciplines are considerable. It must be considered whether it is sensible to attempt to attract ever larger numbers of students into particular fields—a problem of relevance to the current demand for scientists. Of course, it is possible that it is not the inherent nature of the sciences which attracts the obsessional personality, but rather the teaching methods employed in the schools, as, perhaps, was suggested by Hudson (1966). If this were the case there would be no correlation between scores on a measure of obsessional characteristics and performance in 'A' level sciences. If, on the other hand, obsessional traits were helpful for science studies, a positive correlation would be expected.

To investigate this question the scores on 'A' level were correlated with the scores on Ai3. Unfortunately the 'A' level scores were not available from all the candidates but the sub-samples used were not significantly different on the obsessional test from the whole sample. The mean 'A' level mark was correlated with Ai3.

Results

Among the 48 science students, the correlation was 0·378 and was significant at the 0·01 per cent level. The correlation among the 29 arts students was 0·145. This was not significant.

Discussion

The arts students sample is too small to draw any firm conclusions. Nevertheless, the small correlation suggests that obsessional traits play little part in performance. However, the science sample is of greater interest in that it is among these students that the highly obsessional will occur. This negative significant correlation means that being obsessional hinders performance in the sciences.

It would appear, therefore, that the fact that the sciences are attractive to the obsessional character (the precision of the answers, the clear distinction between right and wrong) does not ensure his good performance in them. Indeed his rigidity of thought may be a barrier to mastery of the discipline. The causes of this attraction, whether it is due, for example, to the methods of teaching which stress the precise rather than the inventive sides of science, clearly need further investigation.

References

Barron, F. (1955). 'The disposition towards originality', *J. Abnorm. Soc. Psychol.*, **51**, 478-85.

Beloff, J. (1958). 'The Structure and Origin of the Anal Character', *Genet. Psychol. Monogr.*, **55**, 141-172.

Cattell, R. B. and Drevdahl, J. E. (1955). 'A comparison of the personality profile (16PF) of eminent researchers with that of eminent teachers and administrators and of the general population', *Brit. J. Psychol.*, **66**, 249-61.

Freud, S. (1908). *Character and Anal Eroticism.* Standard edition of the complete psychological works of Sigmund Freud. **9**, 165-75. London: Hogarth Press.

Grygier, T. (1961). *The Dynamic Personality Inventory.* Slough: NFER.

Hazari, A. (1957). *An Investigation of obsessive-compulsive character traits and symptoms in adult neurotics.* London University PhD thesis.

Heim, A. W. and Watts, K. P. (1966). 'The Brook Reaction Test of Interest', *Brit. J. Psychol.*, **57**, 1 & 2, 171-85.

Hudson, L. (1969). *Contrary Imaginations: A Psychological Study of the English Schoolboy.* London: Methuen.

Kline, P. (1969). 'The Anal Character: a cross-cultural study in Ghana', *Brit. J. Soc. Clin. Psychol.*, **8**, 201-210.

Kline, P. (1970). 'The Validity of the Brook Reaction Test', *Brit. J. Soc. Clin. Psychol.*, **9**, 42-45.

Lewis, A. J. and Mapother, E. (1941). *Price's Textbook of the Practice of Medicine.* London: OUP.

Lynn, R. (1959). 'Two personality characteristics related to academic achievement', *Brit. J. Educ. Psychol.*, **29**, 213-16.

Masserman, J. H. (1946). *The Practice of Psychiatry.* Chicago: University Press.

Mayer-Gross, W., Slater, E. and Roth, M. (1961). *Clinical Psychiatry.* London: Cassell.

Reich, W. (1945). *Character Analysis.* New York: Orgone Institute.

Rushton, J. (1966). 'The relationship between personality characteristics and scholastic success in eleven-year-old children', *Brit. J. Educ. Psychol.*, **36**, 178-84.

Toman, W. (1960). *An Introduction to the Psychoanalytic Theory of Motivation.* Oxford: Pergamon Press.

THE 1965 CSE MONITORING EXPERIMENT: A COMMENT

N. W. PLEASE *Statistics Department, University College, London, with a reply by* **G. F. PEAKER**

MR. PLEASE criticizes a study reported by the NFER in 1966 which suggested that CSE grades were likely to be too lenient. He contests the relevance of the 'regression line' calculated by the experimenters which led to their conclusion that a number of examining boards were too lenient in their marking. It is claimed that the regression line is incompatible with the stated objective of the CSE examination which defines grade one as corresponding to a pass at O-level in the same subject. A reply from G. F. Peaker finds the criticism justified, explains how it arose and how it could have been put right.

The report of the National Foundation for Educational Research describes the experimental procedure used to monitor the 1965 examinations for the Certificate of Secondary Education and to compare the grades awarded in these examinations with the results obtained by candidates for the 'O' level General Certificate of Education. The recommendations made by the Schools Council and communicated to the CSE boards in June 1965 were based on the analysis in the report. Unfortunately, despite the excellent plan for the investigation, including the reference test, the conclusion that CSE boards were too lenient appears to be incorrect in that it is incompatible with the basic objectives of the CSE. Since the report is still quoted in connection with investigations into examinations it is the purpose of this note to draw attention to the reason for this incompatibility.

The report took as the basic objectives the recommendations given in the Seventh Report of the former Secondary School Examination Council that, for each subject in the CSE, the examination should be so constructed that:

(i) a sixteen-year-old pupil of average ability . . . may reasonably expect to secure grade 4;

(ii) a sixteen-year-old pupil who . . . might reasonably have secured a pass in the 'O' level GCE . . . may reasonably expect to secure grade 1.

In March 1965 a number of pupils worked a reference test designed by the Manchester University School of Education and, for each of these pupils, a forecast of his grade in each of his subjects in CSE or GCE was obtained from his school. The forecast grades were obtained for the six subjects English, Mathematics, Geography, History, French and Science, but since the same methods were applied to the data for all subjects we shall consider only one, Mathematics, to illustrate these methods. For this subject about 5,300 pupils sat the reference test and of these about 2,400 intended to take the CSE and about 2,900 intended to take the GCE.

Relation between CSE grade and reference test score

(a) The report estimated the average reference test score for sixteen-year-old pupils of average ability to be 28·9 so that recommendation (i) suggests that *CSE grade 4 should correspond to a reference test score of 28.9.*

(b) The report found that 22 per cent of GCE candidates were forecast to fail at GCE and 78 per cent to pass. Now 22 per cent of GCE candidates obtained reference test scores of less than 43 and it was argued that a reference test score of 43 therefore corresponds to the dividing line between pass and fail in GCE. This would imply that a CSE candidate who obtained a reference test score of 43 or more might reasonably have secured a pass in 'O' level GCE and according to recommendation (ii) he may reasonably expect to secure grade 1. Although the report does not seem to make the point explicitly this implies that *the borderline between CSE grades 1 and 2 should correspond to a reference test score of 43.*

(c) The report also calculated another relation between CSE grades and reference test scores—the regression line. The authors wrote: 'Since the reference test evidence showed that the candidates from some boards were, on the average, of a better calibre than the average candidate from all the boards combined, the average grades of these boards should also be better than the average grade of all the boards combined. The question was, how much better? To answer this we needed to determine a "rate of exchange" between reference test scores and forecast grades. This is exactly what the regression relationship between grades and reference test scores does.'

Apart from a footnote 'Technical note: this was the regression of forecast grades on reference test scores and was obtained by pooling the within-schools sum of squares and cross-products', there appears to be no further argument for, or justification of, this line in the report. Yet this line is the basis for the report's conclusions.

Standards of CSE boards

Figure 1 of this paper reproduces Figure 5b of the report, but with the addition of line A-B. For each board a point is plotted corresponding to the mean forecast grade and mean reference test score for that board and the regression line is drawn through the point for CSE grade 4 and reference test score 28·9 (see (a) above). The report says 'However, we must take account of sampling errors. The tolerance limits drawn to either side of the regression line indicate how great the deviation had to be before we could come to any definite conclusion about inconsistency . . . Only those boards which are plotted outside the tolerance limits show evidence of being significantly severe or lenient in their forecasts . . . .'

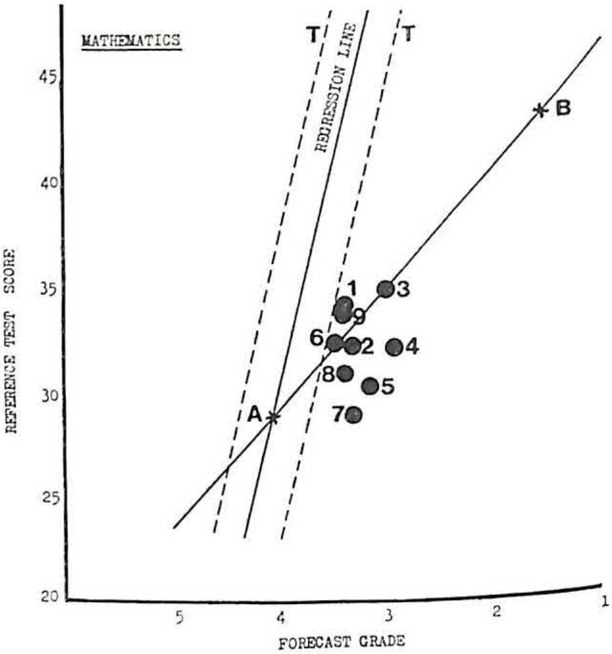


Figure 1

Point A: Grade 4 and reference test score 28·9. Average 16-year-old.

Point B: Grade $1\frac{1}{2}$ and reference test score 43. Borderline for grades 1 and 2 corresponding to borderline pass and fail in GCE.

Since, for Mathematics, the points for all the boards were to the right of the tolerance lines it is concluded in the report that all boards were too lenient in their forecasts for CSE grades. The authors then suggest corrections (Table 7 of the report) for each board, these being derived by measuring the amount by which each point was to the right of the regression line.

The above argument appears to be faulty. For suppose that a board's candidates had a mean reference test score of 28·9, the recommendation (i) requires that the mean grade for that board should be 4. Suppose another board's candidates had a mean reference test score of 43, then recommendation (ii) requires that the mean grade for that board should be on the borderline between grade 1 and grade 2. The point A on Figure 1 is the point with mean grade 4 and reference test score 28·9, and the point B is that with mean grade $1\frac{1}{2}$ and reference test score 43. For boards with candidates of intermediate calibre the points should lie on the line joining A and B and it is a deviation from this line, not from the regression line, which would suggest leniency or severity. The regression line is irrelevant.

It is seen from Figure 1 that, far from being too lenient, the forecasts from boards 6 and 3 are almost exactly right while for only three boards—4, 5 and 7—is there any real suggestion of leniency. In fact the boards appear to have ignored the corrections suggested to them and the actual grades awarded were very much closer to their forecasts than to the grades suggested by the Schools Council. In Figure 2 a point is plotted for each board showing the mean reference score and the mean grade awarded. Point B has moved slightly, from 43 to 44, since it is now based on the actual proportion of GCE candidates who failed instead of those forecast to fail, and it is seen that boards 1, 6 and 9 are slightly on the severe side of the line while only boards 5 and 7 are appreciably on the lenient side. Insufficient information is given in the report for it to be said whether these deviations are significant or not.

While there may be reasons in some circumstances for using a regression line for comparison of examinations, its use in this context is incompatible with the basic objective (ii) since, according to the regression line, grade 1 corresponds to a reference test score of about 90 compared with recommended score of 43. The mean score actually obtained by grade 1 candidates was about 42.

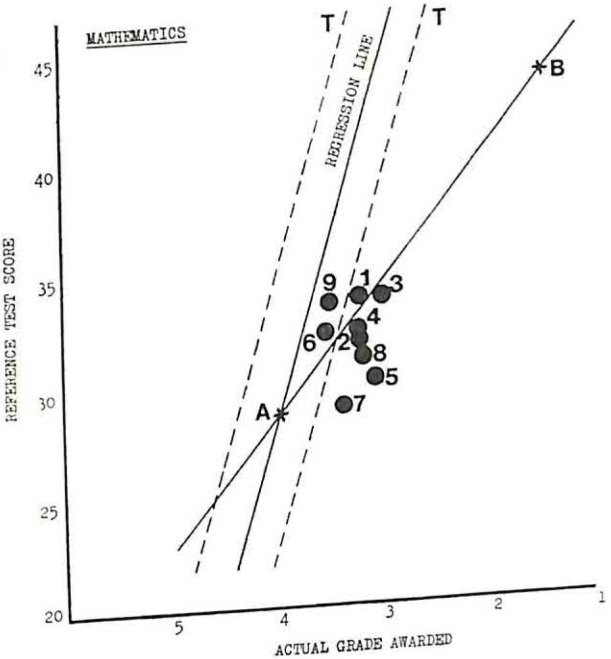


Figure 2

Point A: Grade 4 and reference test score 28·9. Average 16-year-old.

Point B: Grade $1\frac{1}{2}$ and reference test score 44. Borderline for grades 1 and 2 corresponding to borderline pass and fail in GCE.

Reference

NATIONAL FOUNDATION FOR EDUCATIONAL RESEARCH (1966). *The* 1965 *CSE Monitoring Experiment*. Working Paper No. 6, Parts I and II. London: HM Stationery Office.

REPLY by G. F. PEAKER

Mr. Please was kind enough to send me an early version of his paper in March 1969, and in correspondence with him I gave details of the guide line calculations that I carried out in 1967, which lead to very much the same results. What I called 'the guide line' is in fact a structural regression line.

The difference between structural and ordinary regression is that in the latter the error is supposed to lie entirely in one variable, so that there is one regression line when this variable is taken to be x, and another when it is taken to be y. In structural regression the error is supposed to lie partly in one variable and partly in the other, so that the line lies somewhere between the first two lines, and the question is, where? If we knew the proportion in which to divide the error between x and y we could answer this question, but the difficulty is that there is no direct evidence on this point. There is, however, some indirect evidence. This is because the boys and girls fall into two distinct clusters, with widely separated means. The two clusters are of course the CSE and the GCE candidates. Common sense suggests that the best supposition is that the standards represented by the pooled judgments of all the examining boards in each sector are right. If so the line should be the line through the two points corresponding to the general means for the CSE and the GCE sectors.

A further difficulty now arises. We need the points $(\bar{x}_1, \bar{y}_1)$ and $(\bar{x}_2, \bar{y}_2)$ for the general CSE and GCE means. They are the reference test scores, which are common to both sectors and present no difficulty. But the x are in CSE grades for one sector and in GCE grades for the other. How are they to be put on the same footing? In other words how can we estimate the horizontal interval between the two means? To do this we need estimates both of the amount of overlap between the two sectors and of the ratio of the GCE grade to the CSE grade. The latter can be estimated as (CSE s_x/s_y)/(GCE s_x/s_y), which comes out quite consistently for all subjects at about 0·6. For example, in 1966 the values were: English 0·63, Mathematics 0·57, Geography 0·62, History 0·56, French 0·64, Science 0·53, with a mean of 0·59.

As to the overlap, in 1966 the standard deviations of the test scores averaged 11·6 in the CSE sector and 12·4 in the GCE sector. The interval between the sector means in test scores was 16·2 when averaged over all subjects. We also have the second recommendation of the Secondary School Examination Council that a GCE pass is to be equivalent to CSE grade 1, and the estimate that a GCE grade is 0·6 of a CSE grade. By combining this information the slope of the structural regression line can be obtained in terms of either CSE or GCE grades. For example, in 1966 the slopes (in terms of CSE grade/test score) were: English 0·14, Mathematics 0·15, Geography 0·15, History 0·13, French 0·20, Science 0·15, with a mean of 0·15.

A back calculation now shows that this is equivalent to dividing the error in the ratio of four to five in favour of the grades against the test scores—it was the doubt about this ratio that led us to invoke each sector as external evidence about the other. The difference between using the 4:5 ratio and using an even split is trifling; if we had not had the external evidence the natural thing would have been to use the even split, and this would have led to much the same result.

From the calculations outlined above for 1966, and similar work on later years, it seems to me that in such calibrations it is the structural line that should be used. Where there are two well separated sectors the best procedure is to use each as external evidence for the other. Where there is only one sector the evidence so far suggests that the even split will not be far out.

Had structured regression been used in 1965 instead of ordinary regression it would have been seen that the three points representing the GCE mean, the CSE mean and the average 16-year-old pupil were almost collinear. Consequently the 1965 report was mistaken in saying that all the CSE Boards were too lenient in their forecasts, and Mr. Please's criticism is justified. His method is not exactly structural regression, but it embodies the main feature of structural regression as outlined above, namely the use of one sector as external evidence for the other.

CRITICAL NOTE: THE EXAMINATION ACHIEVEMENTS OF HIGHLY SELECTIVE SCHOOLS[1]

Comments by: **M. J. HUTCHINGS** *Godfrey Thomson Unit for Academic Assessment, University of Edinburgh*
D. G. LEWIS *Department of Education, University of Manchester*
F. R. WATSON *Institute of Education, University of Keele,*
with a reply by **T. CHRISTIE** and **A. GRIFFIN**

M. J. HUTCHINGS *comments:*

THOSE who come first in one race cannot do better in their next, but they have every opportunity of doing worse. Thus, if one picks on winners, just as winners, one will find that they tend to do worse in their next race; they often come second or third or lower. It would be absurd, though, to erect this conceptual peculiarity into a discovery about a particular type of runner: i.e. 'winners'. Winners tend to do worse on later occasions solely because they are only called 'winners' when they are at their best.

Just such a discovery, however, was claimed by Christie and Griffin when they thought to show that schools successful at O-level do less well at A-level. It is true that they did not call these schools 'O-level winners'; they spoke of 'highly selective schools', but it was O-level success that formed their actual criterion. One group of 'highly selective' schools was picked by that criterion alone, and a second group by a joint criterion of O-level success and public repute. As one should expect of O-level winners, both these groups showed a decline from O-level to A-level, while Christie and Griffin's third group, selected without reference to O-level success, showed no such decline.

The first requirement for any research into highly selective schools is surely to obtain a sample of highly selective schools: to pick out schools on the grounds that they set high entrance standards or select on merit a very small proportion of some population. Christie and Griffin employed no such criteria. They appear, then, to have conjured a 'finding' about highly selective schools out of a statistical artefact. Without evidence that one of the groups deteriorating from O-level to A-level did in fact consist of the most highly selective schools, they cannot distinguish a genuine effect of selectivity from the trivial implications of picking groups of schools by O-level success. It may be of interest, however, to ask what their figures would show if it *were* known that one of the groups did, in fact, contain the most highly selective schools.

Given this knowledge, it would indeed be apparent that highly selective schools do show a decline in performance from O-level to A-level in relation to the general standard. It is not so clear, however, what discredit this decline would cast on such schools.

One thing that this decline would not entail is that highly selective schools actually perform poorly at A-level; for a decline from outstanding success at O-level could still leave these schools performing creditably well at A-level in relation to the talent of their pupils. The figures show their A-level results to be still comparatively good, and some credit for this could rest with the schools.

At the very least, however, the schools might be reproached for not maintaining in their sixth forms the standard they themselves had set in lower years. Even this reproach, however, cannot be accepted at its face value. It, too, is undermined by just such a conceptual flaw as discredits the 'discovery' about O-level winners; for, in dealing with highly selective schools, we are concerned with groups of winners: winners in the original school selection procedures.

---

[1] Article by T. Christie and A. Griffin in *Educ. Res.*, **12**, 3.

Selective schools are not inhabitated by children of certain and constant high ability. Their selection process is fallible even at the time it is carried out, and it is more and more fallible the further on in time one judges it. The children selected will include several who are not the best at eleven; they will include more who will not be the best at fifteen, and even more who will not be the best at seventeen.

It is clear, therefore, that a selective school should not be expected to do as well at A-level as at O-level, because at the stage of O-level its selection procedure retains greater validity. By the time A-levels are reached, the natural redistribution of ability will have proceeded quite independently of anything the school does. At A-level, the talent available in a highly selective school can be expected, all things being equal, to be less than the talent available in that school at O-level.

The effect of time will be enhanced by the greater dissimilarity between A-level examinations and the school selection procedures; for, in so far as O-level examinations can be taken to be more like the selection tests, those tests will have picked a better team for taking O-levels than for taking A-levels. Thus a comparative decline in performance from O-level to A-level is to be expected from the very constitution of selective schools. Such a decline does not imply inefficiency in their sixth forms.

Given a selected group, standing still is success; for as time and changing demands take their toll, holding one's own is a very real positive achievement. We should look with favour, then, on Christie and Griffin's third group, that of the non-Catholic direct grant schools. These schools did hold their own from O-level to A-level; and if, as seems plausible, they form a natural group of more highly selective schools, this maintaining of their position can be seen as a positive success.

The rest of Christie and Griffin's figures are not such as to give valid support to any useful conclusion. They are vitiated by the criteria by which the two other groups of schools were selected. If we knew that one of those groups did consist of the most highly selective schools, we might be able to find fault with the sixth forms of such schools; but account would first have to be taken of the points I have raised. There might also be still other complicating factors, such as the exceptionally high ratio of attempted A-levels to attempted O-levels which is apparent in both groups. Though Christie and Griffin do not seem to have noticed this feature, it could in itself go far to explain a lower average performance at A-level than at O-level—without casting any discredit on the schools concerned.

D. G. LEWIS *comments:*

The article by Christie and Griffin introduces much needed empirical evidence into a controversial and politically sensitive area. The achievements at A-level of pupils from schools of differing pupil selectivity are compared in a way that purports to make allowance for differences in ability. The method hinges on a comparison of the proportions separated by cut-off points at both O- and A-level. Thus with a cut-off point at the upper quartile for the results of arts pupils from schools not highly selective ('other' schools) the proportions in highly selective (élite) schools appear as shown below (extract from Christie and Griffin's article, Table 3):

	Other Schools	Élite Schools	
O-level	Top 25%	51·27%	> Difference significant at the 1% level
A-level	Top 25%	42·44%	

The significant decrease in proportion—which also occurs at the bottom 25 per cent—is interpreted as a falling off in performance of the sixth-formers from élite schools, a failure to live up to their O-level expectations, as compared with the performance of sixth-formers in the non-highly selective schools. This note is written in the belief that such an interpretation is not justified, and that the evidence and statistical arguments presented by Christie and Griffin need to be set out clearly for further scrutiny.

The steps in the reasoning may be set out as follows:

1. Highly selective schools have better A-level results;

2. This is due, wholly or in part, to these schools also having better O-level results;

3. It is therefore justifiable—in so far as one focusses interest on education in the sixth form—for the between-school differences at A-level to be corrected for corresponding differences at O-level;

4. O-level performance may be interpreted primarily as a measure of 'pupil calibre'.

As regards the statistical procedure, although the proportions cut off by the quartiles defined by results from the 'other' schools are not expected to be 25 per cent for the élite schools, they are expected to be no less at A- than at O-level if the better A-level results of the élite schools are not to be attributed solely to their selectivity. Hence the reproach administered by implication to the élite schools for failing to maintain their 51·27 per cent.

The first three steps set out above are clearly fundamental. The fourth seems to the writer to have been introduced in an attempt to bolster up the third. (Another possibility however appears to be that of attempting to extend whatever validity the correction procedure may have below the sixth-form stage.) Clearly O-level performance is indicative not only of pupil calibre but also of the quality of teaching provided by the school. By correcting for between-school differences at O-level therefore Christie and Griffin are in fact 'correcting' for more than they should. They are applying control in part on the variable they wish to measure. The qualification necessary in applying statistical control through an analysis of co-variance, namely that the measure controlled should not affect the treatment variable (Lindquist, 1956, 323; Lewis, 1968, 186), is also necessary here. A further point is that if this over-correction were ignored, an at least equally plausible case could be advanced for identifying pupil calibre with performance at A- rather than O-level, and making similar adjustments. Certainly it is the academic qualities assessed by A-level examinations which are more predictive of success in higher education. From this point of view the statistical procedure of Christie and Griffin would still apply, but with the results looked at 'backwards'. The élite schools, then, merit congratulation on an unduly high measure of success at O-level, a measure of success beyond the expectation of pupil calibre as assessed by A-level. Possibly Christie and Griffin's sights are confined to the 'forward' view as their interest is concentrated on sixth-form education, their data being culled from a larger study of sixth-form structure. What should be clearly recognized, however, is that the relative success of the highly selective schools at O-level is necessarily to their disadvantage in Christie and Griffin's interpretation of the correction procedure that has been applied.

Christie and Griffin's discussion of the regression phenomenon might well confuse. Regression towards the mean occurs only when the same group is tested twice and the group mean on the first occasion differs from that of the parent population. The authors deal not with group means but with proportions above and below certain cut-off points, and the groups so separated on the two occasions of testing are different (though of course some—if not many—of the same individuals are involved). Certainly, if individuals comprising the extreme groups at O-level were followed through, regression movements would have to be reckoned with, but when those whose A-level performance moves inwards (and over the demarcation line) are replaced by others with results moving outwards, and with the group as a whole in dynamic equilibrium (Lord, 1967), no regression need be anticipated.

Yet one qualification—and an important one—remains. Christie and Griffin's samples are pupils from the two types of schools who have completed A-level examinations in three subjects. If, however, the sample space is enlarged to include all pupils in the same schools completing O-level examinations, regression is involved through prior selection (i.e. because only those who subsequently take three A-levels are considered). The O-level results of the selected pupils will regress towards the mean (i.e. will be depressed relative to the overall mean)—or, reversing the direction of view, an 'improvement' from O- to A-level must be expected—and moreover this regression—or 'improvement'—will not be the same for the highly selective and other schools. Neither need it be the same for the arts and science pupils in either type of school. There could well be a post-O-level differential selectivity in presenting pupils for three A-level examinations, and the non-highly selective schools could well be the more highly selective after O-level. If this were so, the highly selective schools would show less 'improvement' at A-level, or relative to the other schools a deterioration—in fact precisely what the extract from Christie and Griffin's Table 3 shows. Some of the arts-science differences brought out by Christie and Griffin might also be accounted for, at least in part, in this way.

Finally, a note of complaint may be sounded against the occasional imprecise formulation, which could be particularly unfortunate in an article snippets of which may be extracted to serve the propagandists on either side. Thus when the authors write that the A-level results of the less selective schools are better than those of the élite schools at both ends of the distribution in arts and improve on those of the élite schools at the lower end of the distribution in science this must be set against the most basic fact that it is the A-level results of the more selective schools (and in both arts and science) which are in fact the better. Christie and Griffin have nevertheless made a valuable pioneering study and further empirical evidence in this field would be welcome.

References

LEWIS, D. G. (1968). *Experimental Design in Education*. London: University of London Press.

LINDQUIST, E. F. (1956). *Design and Analysis of Experiments in Psychology and Education*. New York: Houghton Mifflin.

LORD, F. M. (1967). 'Elementary models for measuring change', Chapter II of HARRIS, C. W., ed., *Problems in Measuring Change*. Wisconsin: University of Wisconsin Press.

F. R. WATSON *comments:*

It is necessary first to examine the concept of 'regression to the mean' in order to demonstrate where the error lies. The authors do briefly consider this as a possible explanation of their findings, but then, in my view wrongly, reject it. Following Sir Francis Galton who first described, and named, the regression phenomenon in 1889, we compare the heights of fathers (H) with those of their (adult) sons (h); a discussion in terms of stature may avoid some of the overtones associated with examination results. Tall men tend to have tall children and a fairly high positive correlation exists between the variables H and h. If we are given the height of a father, we can predict the height of one of his sons using an equation of linear regression. The *actual* heights of sons whose fathers are of the given height will vary but statistical theory shows that the average of the actual heights will, in the long run, be the *predicted* value of h.

If each variable is measured as a deviation from its mean value, in terms of the corresponding standard deviation as a unit, the regression equation takes the simple form:

$$Z_h = r\, Z_H \qquad \ldots \qquad \ldots \qquad (I)$$

where Z_h is the (standardized) deviation of h above its mean, Z_H is the corresponding deviation of H, and r is the coefficient of correlation between h and H (see, for example, Guilford 1965).

Since r cannot be numerically greater than unity, the predicted value of Z_h is always closer to the mean than the given value of Z_H. For example, using the value $r = 0{\cdot}5$ given by Galton, if H is one standard deviation 'unit' above the mean, the predicted value of h is only 0·5 standard deviations above the mean; hence the term 'regression to the mean'. We note also—and this is important in what follows—that as a consequence of equation (I) the further away from the mean the initial value of H, the greater the movement toward the mean in the predicted value of h. (Thus, for example, if H is two units above the mean, the predicted h is one unit above the mean.) It may be objected that if the foregoing is true, after several generations all men would have nearly the same height—the regression paradox; this does not follow, however, and the explanation is given in many standard statistical works. (See for example Wallis and Roberts, 1965, p. 258 ff.)

Let us now examine the underlying assumption of Christie and Griffin in their article. Though not explicitly stated, this appears to be as follows: if x per cent of the pupils in a 'better' school exceed a certain criterion at O-level, and fewer than x per cent exceed a similar criterion at A-level, then a 'deterioration' has occurred. A parallel statement in terms of stature would be: if x per cent *of a group* of tall fathers exceed a certain height and fewer than x per cent *of their* *sons* exceed this height then a deterioration in stature has occurred. Although we speak now of percentages rather than SD units, the argument is unchanged and a little thought will show that this 'deterioration' is nothing other than the expected regression phenomenon; it would be surprising if it did *not* occur (in this connection, see Table 1 on p. 205 of Christie and Griffin's article). To write of 'a distinct weakening ' 'very moderate performance indeed,' 'schools . . . involved markedly in the deterioration,' seems analogous to censuring the sons of a group of tall fathers for their failure to achieve the same stature as their parents. The point is that if, having chosen a group on the basis of high performance we then compare its later results with those of a group of lower performance (but still above average for the whole population in that age group) we expect *both* groups to exhibit a regression toward the population mean, but the 'deterioration' will be greater in the group of higher performance. This phenomenon is apparent in the tables given by Christie and Griffin, and is particularly clearly illustrated by Table 2, p. 205. Here the sole criterion for grouping schools is that of O-level performance so that it is the regression effect and that alone which is under consideration. We are led to conclude that those schools which have the most able pupils at O-level are woefully inadequate in catering for their A-level pupils! Here is the regression fallacy in full view—Wallis and Roberts (1957) give several other examples (p. 258 ff., and see Example 262A, p. 262, 'Midterms and finals', which is almost an exact parallel).

A further error occurs through the use of a shifting criterion (cf. Wallis and Roberts (1957) Ch. 3, pp. 74-78, Sections 5 and 6). We have seen that both groups will regress, the better group to a greater extent. By using the performance of the top and bottom 25 per cent of the moderate group *as a criterion*, the 'deterioration' of the moderate group is reduced to zero, and the performance of the better group is seen by comparison to be 'worse'. ('No assumption is made that the same pupils are involved in a given quartile in Tables 1, 2, 3 and 4', p. 206.) Similarly in Table 4 where the performance of the better group is used as a (shifting) standard, the moderate group achieves a relative 'improvement'.

In their brief discussion of regression (p. 206) the authors do not appear to meet these criticisms; it is not clear what is meant by 'regression to the mean is taken care of at the individual level'. Further, the remark 'if these are real groups, schools within groups will regress to their own group mean' suggests that the authors believe these *are* real groups. This is certainly not so for Table 2 and ignores the fact that we are dealing with a continuum of schools (and of pupils). It is *not* the case that, where fathers have heights in the top 10 per cent of the population, the heights of sons will regress to a group mean—the regression is towards the *population* mean.

The foregoing discussion implies that the conclusions drawn by the authors do not follow from their analysis of the data. They ask, 'Is it sufficient to write these findings off as a statistical artefact?' Regrettably only one answer seems possible. They say, 'There is absolutely no evidence in the tables to suggest that bringing together the most able pupils under one roof leads to any kind of augmented achievement, insofar as A-level grades can be taken to be a valid assessment of academic achievement.' (p. 208.) It might be argued that Table 1 provides *some* evidence, in that the expected regression does not occur for Arts or for good Science students. However whether the observed regression in the tables is greater or less than is to be expected is difficult to establish and an alternative design for the investigation seems preferable. Basically, we are concerned with the question: 'Would the sixth-formers who followed an A-level course in highly selective schools have performed better or worse in less selective schools?' Since any given pupil can only be subjected to one of the experimental alternatives the question cannot be answered directly, but it would be simple to compare the A-level performance of a number of randomly-chosen *pairs* of pupils, alike in other respects, one of whom was in the highly selective environment and the other not. The effect of the 'stimulus of competition among peers', if any, would then emerge as a difference in performance between the two groups. The setting up of matched pairs for such an investigation would be more troublesome but would be likely to lead to valid conclusions and to achieve the stated aim of 'introducing factual evidence into the current debate'. The decision for or against élite schools may well be determined by social or economic considerations, but it is important that the educational evidence should be correctly assessed.

References

GUILFORD, J. P. (1965). *Fundamental Statistics in Psychology and Education.* (4th edition) pp. 369-70. New York: McGraw-Hill.

WALLIS, W. A. and ROBERTS, H. V. (1957). *Statistics: A New Approach.* London: Methuen.

REPLY from T. CHRISTIE and A. GRIFFIN

None of our critics believes that our interpretation of a significant decrease in proportion as a falling off in performance of the sixth-form pupils from élite schools is justified. Their several arguments about regression we shall treat as a group, but first we will turn to an argument of a different kind presented by Dr. Lewis.

The first step in his argument is to assume that the mean O-level results are indicative not only of pupil calibre but also of the quality of teaching provided by the school. It follows from this assumption that we are 'correcting' for more than we should and contaminating the treatment variable. What does not follow is that this putative 'over-correction' can be equated with a necessary deterioration. Let us set out the argument clearly for further scrutiny. Suppose that the O-level results are indicative only of the success of the teachers in preparing candidates for the O-level examination. It is suggested that this success is not unrelated to success in preparing candidates for the A-level examination—'the treatment variable'. The most extreme 'over-correction' would obtain where school groups were equally good at preparing for both. We should then have controlled all of the variables we wished to measure so that they no longer exerted any effect between O-level and A-level. The result in this theoretical situation would be identical proportions at O-level and A-level in any group of schools since no variable would have intervened. In sum, the most extreme 'over-correction' leads to a conclusion of 'no change': it cannot explain a relative deterioration. Conversely, the presence of a deterioration speaks against any extreme 'over-correction' on our part. Anything less than total correction, i.e. 'correction in part' as Dr. Lewis has it, can affect the magnitude but not the *direction* of differences between the proportions.

These conclusions also hold for the mixture of pupil calibre and teaching calibre put forward by Dr. Lewis, providing that pupil calibre is taken to be a constant over time. Dr. Lewis at this stage in the argument seems prepared with us to accept that proviso, unlike Hutchings and Watson who hold that the pupils are becoming steadily more stupid. As Dr. Lewis does not attack us for correcting for pupil calibre but only for correcting for more than pupil calibre he has only two possible interpretations of the data available to him. He can suppose that the highly selective schools are less effective in preparing pupils for A-level than they are in preparing them for O-level. Alternatively, he can suppose that the other schools are less effective in preparing pupils for O-level than they are for A-level. For our part we shrink from congratulating the élite schools on their O-level performance, not because our sights are confined to the 'forward' view, but because the élite schools both in their public pronouncements and their normal practice see O-level as almost an irrelevance for their pupils. Mr. Hutchings has already drawn the reader's attention to the relative paucity of O-level attempts by the pupils in the élite schools: by-passing O-level in the A-level subjects, allowing a longer period of A-level preparation, is a commonplace of their sixth-form system.

We are left with the other possibility, that the other schools are relatively poorer than the élite schools in preparing pupils for O-level rather than A-level. This interpretation also we do not feel able to accept, not simply because it runs contrary to the emphasis of the different schools but because the research literature on teacher effectiveness renders highly implausible any explanation in terms of Dr. Lewis's additional variable, 'quality of teaching'. Nevertheless, we will limit ourselves here to a reassertion that there is nothing in our 'correction procedure' which *necessarily* disadvantages the élite schools. The reader can evaluate for himself the possible educational explanations of the results.

Turning now to Dr. Lewis's second argument, that although the cruder forms of the regression fallacy have been avoided there yet remains a subtle sampling effect, we take it that Dr. Lewis is here enlarging upon his admirably succinct discussion of the regression problem in a general way, rather than seeking to make a substantive point. We are led to this conclusion by his citation of a hypothetical case in which the 'non-highly selective schools could well be the more highly selective after O-level'. As the argument of the first half of his paper is based upon a proper understanding that in our tables precisely the opposite situation obtains, little is to be gained by considering what would happen 'if this were, in fact, so'—any coincidence with our results must be entirely fortuitous.

In the highly selective school almost all lower school pupils stay on into the sixth form and attempt three A-levels. A much smaller proportion of the pupils in the other schools do so. Hence Dr. Lewis' reference to a reduced sample space.[1] Now with any two variables if a group is selected on one its mean score on the other will show a drop. The variable upon which selection takes place is the 'prior' variable in Dr. Lewis's terminology and he points out that we include only the O-level records of a selected group of A-level candidates. We would point out in reply that in the schools our selected group had themselves been selected, at least in part, on their O-level records. Thus it is the O-level selection that has priority and if Dr. Lewis's sampling argument has any force his argument will be reversed. The expectation becomes that the final comparison now involving 'deteriorated' A-levels will be more flattering to the élite schools since it will show an apparent 'improvement' on their part. As the hypothetical situation required to allow of this artefact does not, in fact, obtain, we do not take it to be a material point.

We turn now to the classic regression argument. Mr. Hutchings and Mr. Watson, unfortunately, do not distinguish pupil regression from school regression. We imagine, however, that in the face of a model which for individual pupils is in 'dynamic equilibrium' as Dr. Lewis would have it, they must have school-based regression in mind except, as in Mr. Hutchings' paper, where a substantive theory of the educational progress of the gifted is provided. We do not feel it is necessary to reply to any misunderstanding of the regression phenomenon as it affects individual pupils.

If their claim is that regression is operating at the school level we would agree that there is evidence of this, especially in relation to our second sample—that which was chosen on the O-level criterion alone. It is the existence of this school-based regression which constituted our test. It is school-based regression which we feel has educational implications.

Let us amplify our argument *vis-à-vis* regression. We are asked to make some comparison of highly selective direct grant schools and the schools in the maintained system. The Public Schools Commission, in deliberating the future of the direct grant schools, received various submissions based upon the idea that these schools provide an education which is *different in kind* from that provided by the rest of the system and which should not be lost as the rest of the system changes. One feature of the difference which is held to have particular advantages is the presumed enhancement of achievement due to the exclusive company of one's peers.

The point at issue is therefore quite clear: do highly selective schools as a group, and more particularly élite schools as a group, differ in kind from the other schools in the system? One possible model is that there are two groups of schools differing in kind. If this is substantiated a plausible mechanism leading to the differentiation will be the influence of the peer group.

A second model of the system is also possible and somewhat to our surprise endemic among our commentators. This model says that there is only one group of schools, and differences between schools in the group are not differences in kind but merely differences along an underlying continuum of pupil ability. There is no differential impact due to the educational efforts of the school or to the psychological concomitants of its organization. In this model the starting point is that the submissions to the Public Schools Commission in favour of the retention of the direct grant schools are to be dismissed as so much hot air. An élite school is simply an ordinary grammar school which contains very bright eleven-year-olds who are doomed to a history of declining achievement. Unlike Watson and Hutchings we did not feel able to start from this assumption.

---

[1] Once in the sixth form, however, 88·94 per cent of boys in maintained and 90·42 per cent of boys in direct grant schools attempt three A-levels. There is in fact no differential sampling of the type required by Dr. Lewis's argument.

What we have done is to accept neither model as a starting point but instead to set up an analysis which will fit either model and then to test the goodness of fit of the models to the data. Whichever model has the best fit is the one we will accept and discuss in terms of its educational implications.

Our procedure is then quite simple. Form two groups of schools on some criterion or criteria which can be held to distinguish them. Look at their A-level results in relation to their O-level results. Under Model 1 the two groups of schools contain pupils drawn from *two different populations* undergoing *different kinds* of educational experience. In this model, regression as always will be to the population mean (see Thorndike, 1942 to see why the research methodology proposed by Mr. Watson would be entirely inappropriate), and so as each group has a different population mean we can expect that if the educational experiences are different, but equally efficacious the degree of O-level separation will exactly mirror the degree of A-level separation. If the experiences are not only different but one is more advantageous than the other, the direction of the change in the degree of separation will reflect the bias in advantage.

Under Model 2 all schools are drawn from the *same population*, and provide an identical educational experience. Once again regression will be to the population mean. As there is now only one population, its mean co-extensive with that of the unselected schools, we can take this model to hold if there is a relative deterioration in the results of the selected schools.

A reduced separation demands that we either accept Model 2 or Model 1 with the proviso that the difference is not in favour of the selected sample: an identical degree of separation demands Model 1 with a difference but no superiority: and greater separation demands Model 1 with the difference bringing an advantage to the selected schools. It may now perhaps be clearer to the reader why we claim that regression will have educational implications.

If the reader turns once more to the results he will see that there is some justification for our procedure in that the results from different samples fit different models. The first sample, all direct-grant schools, shows no change at A-level in Science and an improvement in Arts. We must then accept Model 1. Children in direct grant schools undergo an educational experience which is different in kind from that provided in the maintained schools and is to the advantage of Arts candidates.

The second sample, highly selective schools chosen simply on an O-level criterion, demands Model 2. They do not differ in kind from the other schools. We may assume then that the advantages of the direct grant schools do not inhere so much in their selectivity as in their differential status.

Our final sample is, of course, the crucial one since it consists of direct grant schools which are also highly selective, the fate proposed for all such schools by their supporters. There the data can fit Model 2 or Model 1 with a difference in kind which is not to the advantage of the élite school pupils. We prefer Model 1 because of its logical fit to direct grant schools. There is, in fact, an underestimate of the disadvantage to Arts candidates in their figures.

The important question becomes: why a disadvantage? We suggest that it can only accrue from the one variable differentiating samples one and three, the highly selective school idea itself.

We conclude, therefore, that the intellectual hothouse *per se* is not the best place for an intelligent boy to be. Watson suggests that this is so because he gets more mediocre as a consequence of repeated examination; Hutchings, that he gets more mediocre because he was a bright eleven-year-old. For our part we would echo Dr. Lewis's plea for more substantive information about the educational process itself rather than its outcomes. We have simply pointed to an educational problem and cannot feel that any of our critics have made it disappear.

Reference

Thorndike, R. L. (1942). 'Regression fallacies in the matched group experiment', *Psychometrika*, **7**, 85-102.

BOOK REVIEWS

Sociology, History and Education

edited by P. W. Musgrave. Methuen, 1970, 293 pp. Price £3.00.

There is a strong case for a moratorium of the publication of any more readers in the social sciences until there is more original work from which to extract. Too much energy is being devoted to the façade, not enough to the foundations. This reader, edited by Musgrave, is the exception. It collects together articles from a variety of often inaccessible sources to establish welcome territory between two subjects that have remained unnecessarily separate. Inevitably the quality and continuity is uneven, but all are refreshingly free from jargon and stay close to the concrete situation. Musgrave provides a clear and unobtrusive linking commentary.

Education suffers from a chronic lack of definition. Its elasticity is unbounded. At one extreme sociologists used education as a term interchangeable with socialization, embracing all forms of learning. At the other extreme historians write as if schooling was all that was involved. The path to a definition lies through the borders of such subjects as sociology and history. The selections in this reader are therefore from the real core of education, including not only schooling but family, religion, community, communication, work and the economy. The variety in the twenty-two articles is often confusing, but they add up to a picture of education as a social institution inseparable from the changing flux of societies and the product of many apparently discrete but actually related agencies.

It is unfair to select particular articles, for with this variety it is what you fancy that seems to be good and there is never space to include sufficient description to allow the reader to assess the status of the evidence. However, the newcomer to the study of education, or the jaundiced veteran, should try, or try again: Aries on childhood in history and Musgrove on population changes and the status of the young. Both sweep across history and leave an appetite for more. Goody and Watt on the impact of literacy and Eisenstein on printing are equally mind-broadening. By contrast there are closely argued, tightly focused studies such as Baron on headmasters, Tropp on teachers and Cannon on the religious influences on educational policy that illuminate small but crucial areas of educational history.

However, it is the range of interests and perspectives that gives this reader its value. The aggressive rise of sociology and the defensive posture of history within the contemporary study of education have probably inflated the former and deflated the latter beyond their true status. The balance will be restored through the cross-fertilization that is represented here. It is recommended as a source for reference and as an easily digestible book for bedtime. It deserves a large public.

M. D. Shipman

Six Years After

by Kelsall, Poole and Kuhn. The University of Sheffield, 1970, 103 pp. Price £2.50. (including postage).

This is, in fact, only an interim report of a major research study conducted by the Higher Education Research Group at the University of Sheffield. While there have been many studies of the 'first jobs' of university graduates, this research breaks new ground in tracing the careers of a representative national sample for a period of six years after the completion of the first degree.

The cover design of this neat little book appears to depict a square peg fitting loosely but comfortably within a roughly square hole. This can be interpreted as a fairly flattering assessment of the work of university appointments boards. The research findings offer support to the symbolism. About one half of the sample went directly into

NEW FROM METHUEN

THE SCHOOL CURRICULUM

W. Kenneth Richmond

Although methods of teaching are being constantly brought up to date, little serious practical work is being done on the question of *what* to teach. Mr. Richmond shows why, for the first time in history, educationalists are being forced to the conclusion that innovation has to be *managed*, and then goes on to examine the pattern of current curriculum reform in Britain, Europe and North America.

£2·75; Education Paperback: £1·40

THE CHANGING CURRICULUM

History of Education Society

Recent years have seen a renewal of interest in the field of curriculum development, although relatively little account has been taken of the complex circumstances which have affected curriculum change. The five papers in this volume provide some much needed elucidation on the subject.

£1·50

LANGUAGE AND TEACHING: A Psychological View

Peter Herriot

A description, from the point of view of the psychologist, of the nature of language and its relationship with thinking, with personal and social developments and its manifestations in the classroom. The jargon of psychology is carefully avoided however, and the author assumes no prior knowledge of linguistics or psychology, so that the book should be especially useful to the student, or to those already engaged in teaching. It is a primer of communication.

£1·25; University Paperback: 60p

PATTERNS OF POWER AND AUTHORITY IN ENGLISH EDUCATION

Frank Musgrove

Professor Musgrove argues that schools, together with colleges and universities, are underpowered for the job they are trying to do: partly as a result of circumstances within contemporary educational institutions, but due chiefly to their uneasy relationships with the wider social environment and with academic administrators.

£2·00; University Paperback: £1·00

full-time employment after obtaining a first degree in 1960. Although most of them did change jobs at least once during the next six years, few of them moved out of the field of employment they had originally chosen. Teaching appears to be the most stable profession. A surprisingly large proportion of men and women seem to have decided on a teaching career while still at school. Their numbers swell during the undergraduate years and, of those who enter the school-teaching profession, we find 86 per cent of the men similarly employed six years later. For women, the figure is 50 per cent, but only 6 per cent have moved elsewhere, while 44 per cent have stopped working—presumably for domestic reasons. Compared with other groups, graduates who enter teaching appear noticeably unimpressed by the usefulness of their post-graduate professional training.

There are many other results which are in general accord with expectation, although it is useful to have it so neatly quantified. Women and men graduates, apart from teachers, start at similar salaries, but women are promoted more slowly and six years later are earning much less than men with the same qualifications. Degree class has a strong effect on the choice of first post-graduate occupation, but little on eventual earning power. Oxbridge produces a disproportionately large number of entrants into commerce and 'private practice' many of them with poor degrees, and this group report high incomes by 1966. Teachers, predictably, are the worst paid group of all.

Further attention is drawn to the 'brain drain', earlier dramatized by the Jones Report in 1967. The figures presented leave no doubt as to the serious nature of the situation in the early 'sixties. About a third of all the Science and Technology PhDs in the sample were working abroad by 1966, three-quarters of these in North America. 'Better pay and conditions' was the usual reason given.

The survey appears to be a sound piece of work. About 40 per cent of all those obtaining first degrees in British universities in 1960 responded to the questionnaire. Some small groups, principally the medical one, were excluded from the sampled population, but the authors carefully present evidence to justify confidence in the responding sample as representative of the graduate population. The report is not particularly readable, being packed with figures. There are, in fact, 104 tables scattered through its 90 pages (excluding appendices), but this reviewer, at least, welcomes the form of presentation. This book breaks new ground by giving information not previously available for Britain. While some of the analyses appear to be superficial, we are promised more detailed results in reports still to come. These will be awaited with interest. However, the speed with which the educational scene changes is a new hazard for survey workers. This study carried out in 1966 on 1960 graduates and published four years later is already dated. Clearly, the 'brain-drain' situation has changed dramatically, there has been a swing away from science in the universities, and the polytechnics are turning out a new breed of graduate. It will soon be time to repeat this able Sheffield study.

BRUCE CHOPPIN

The Social Psychology of Education

by D. W. JOHNSON. Holt, Rinehart and Winston, 1971, 314 pp. Price £2·80.

ROLE theory has immediate attractions for the educationalist. First, it provides insights into the structure of learning situations and the behaviour of those involved. Second, these insights appear to be open to uncomplicated empirical investigation. Third, role theory acts as a bridge between psychology and sociology. It is this ubiquity that makes the many books entitled *The Social Psychology of Education* so attractive. Johnson has written a typical example, neatly analysing the structures and processes within education using a functionalist perspective around the concept of role at the hub. It provides a theoretical framework that could profitably supplement the many books on the sociology of education that lack such a unifying thread and are focused on the relations between schooling and its environment.

The concentration on roles and on the climates, values and norms that define them within educational organizations is probably the easiest perspective for students to grasp. It is both coherent and convincing. Here the model is developed in an attractive style. The concentration on organizations makes it more relevant to contemporary education than its competitors and

Educational Source Material in Microform

A selection of the major 19th century Commission Reports on education in general and the state of the major universities, is now available in microform

Reports obtainable include:

1873 Report on the Universities at Oxford and Cambridge

The Selbourne Commission on London University (1889)

The Newcastle Commission on the State of Popular Education in England (1861)

The Cross Commission on the Elementary Education Acts (1886-1888)

The Bryce Commission on Secondary Education (1895)

The Taunton Commission—The Schools Inquiry Commission (1867-1868)

Microfilms are also available of selected Education Acts from 1870-1918; The British Journal of Educational Psychology and the Durham Research Review, whilst forward publications will include the School Science Review; Education in Science–the bulletin of the Association for Science Education; the Minutes and Reports of the Committee of the Council of Education from 1839, and the Reports on special educational subjects 1897-1910

Available from:

MICRO METHODS LIMITED

East Ardsley, Wakefield, Yorkshire

'EDUCATION IN THE NORTH'

Special issue of one of Scotland's leading educational journals

EXCEPTIONAL CHILDREN

Contributors to Vol. 8 include

Professor Ross Mitchell
Professor N. R. Tempest
Professor J. Tizard
David Clark
Dorothy Fiddes
Stephen Jackson
George Montgomery
Betty Willsher

Price 30p post free from
Subscription Dept. (ER), 'Education in the North',
Aberdeen College of Education,
Hilton, Aberdeen AB9 1FA

brings it closest to sociology. It is particularly thorough in treating interaction in the classroom and in the mustering of evidence for illustration.

However, the convincing picture may be misleading. Indeed, the neatness of the conceptual framework is itself suspect. Schools often coerce, label and indoctrinate. They also get swept into the turmoil of contemporary urban life. Alternative theoretical standpoints are needed to present this unattractive but common face. The attack on conventional criminology and the educational implications of such writers as Becker, Cicourel and Matza are not considered. Similarly the chapter on methods of investigations, while welcome, gives the impression that there are simple steps in research, which, if followed, lead automatically to completely reliable evidence. This impression is reinforced by the wealth of references that are included, usually without comment on their status. The description is of an established framework on a solid empirical base. This is misleading at a time when many social psychologists are busy chipping away at what they see as a rotting foundation.

The layman will also detect a gap between the neat theoretical model and the sometimes sordid and often muddled reality. Universities, colleges and schools have been too troubled recently for the seamy and often unpredictable side to be omitted. This should be apparent in an American book published in 1971. This anomaly makes it even harder to accept the American context and selection of references that do not always export well. This is a useful and well written book. There is, however, a lot of sugar on the pill.

M. D. Shipman

Mental Imagery in the Child

by Jean Piaget and Barbel Inhelder
(Translated from the French by P. A. Chilton).
Routledge and Kegan Paul, 1971. Price: £3·50.

L'Image Mentale Chez l'Enfant first appeared in 1966, although many of the experiments it reports were conducted in the late fifties and early sixties. The publication of the English translation presents a problem to the reviewer. Like its predecessors, the book is long and difficult. The infelicity of its presentation and turgidity of style are not helped by an over-literal translation abounding in gallicisms. Above all, in the present case, the title of the book gives no immediate clue to its contents. But—Piaget is an original and creative thinker whose special genius it has been to evolve a complex set of ideas which, for him, can generate whole areas of scientific inquiry which he then explores. Only the first and last chapters of the book are purely theoretical. Chapters 2 to 9 are descriptions of experimental inquiries, and most of these deal with fields hardly dealt with elsewhere in psychological literature. Nor have they been more than touched on in the earlier English publications of Piaget. Therefore the book cannot be lightly dismissed.

Images, like perceptions, are private. But perception is of an object. It can therefore be studied directly by requiring the subject to make discriminative responses to controlled variations in the object. The technique is the oldest in psychology and is applicable to animal subjects as well as human. Images occur in the absence of an object. Their study is therefore less direct, and usually bears either on verbal description or on observation of physiological correlates. Piaget's technique is quite different. In most of the studies described in this volume, children are asked to draw, or to choose among drawings made for them, to represent successive states in the movement or disposition of an object or a group of objects. In some cases the movement is observed before the reproduction, in others the subject is asked to anticipate it in advance. For instance, he is shown a bar of metal curved into an arc and asked to draw it both as it is and as it would appear if straightened out. It is assumed that the drawing is the externalization of an image.

Straight away, one may ask whether images necessarily intervene in this kind of activity. Perhaps what is being studied is simply what children 'think' things would or did look like after some transformation. However this may be, these studies are very germane to the role of what Bruner calls 'ikonic representation' in the development of thought. Piaget's thesis is fourfold: (1) that the image (so defined) is a product of active imitation (following a movement with eyes or gesture) rather than a prolongation of perception (like an after-image); (2) that there is only one real break in the development of imagery, and this occurs about the age of seven to eight: from this period on there is greater articulation and consistency, due to the role of operativity; i.e. the development of thinking determines what can be successfully imagined much more than vice versa; (3) that images can only compass static configurations or states, while operativity interprets successive states as transformations; therefore operativity is essential to the development of logical co-ordination; (4) nevertheless some creative thinkers can use an imaginal scheme as a sort of reference point to further thought.

The book contains a mass of experimental evidence to substantiate (2). Not only the drawings of children but also their selections from multiple choice alternatives abound in unexpected but consistent errors. Often these are in the nature of 'pseudo-conservation': the subject fastens on some part of the display as given and imagines that this will remain fixed in the course of a displacement. For instance, when shown two pieces of cardboard one above the other and asked to draw what they will look like when the upper square is slid to the right, younger children consistently fail to anticipate that the right edge of the upper square will necessarily project beyond the edge of the lower square—i.e. there is pseudo-conservation of the right boundary.

(4) is of course little more than an intelligent guess with which few would quarrel. However, in the opinion of the present reviewer, the evidence for (1) and especially (3) is far from conclusive. In particular I see no reason to suppose there can be no image of continuous movement. Moreover to explain operativity in terms of transformation is to invoke a logical criterion in place of a psychological one. A much more straightforward hypothesis is that operativity depends on the ability of the child to entertain and reconcile several (2 to 3) pieces of information. Until he can achieve this, both his reasoning and his powers of visualization remain global and defective. The facts of pseudo-conservation also illustrate that the child aims at stability and coherence right from the start. If at five or six he is still unaware of contradiction, this is because he is unable to bring more than one or two judgements within a single focus, and not because he necessarily ignores continuity.

The British Journal of Educational Psychology

Vol. 41, Part 1

Editor: Professor J. D. NISBET

February 1971

SYMPOSIUM ON READING DISABILITY:

1. T. R. MILES, Bangor: More on dyslexia.
2. T. T. S. INGRAM, Edinburgh: Specific learning difficulties in childhood: a medical point of view.
3. M. M. CLARK, Strathclyde: Severe reading difficulty: a community study.
4. S. NAIDOO, London: Specific developmental dyslexia.

S. B. G. EYSENCK, D. K. B. NIAS and H. J. EYSENCK, London: The interpretation of children's lie scale scores.

P. N. RICHARDS, Bath, and N. BOLTON, Durham: Divergent thinking, mathematical ability and type of mathematics teaching in junior school children.

P. WOODS and J. R. HARTLEY, Leeds: Some learning models for arithmetic tasks and their use in computer based learning.

J. M. ROSS, London, and H. R. SIMPSON, Harpenden: The national survey of health and development.

S. A. RICHARDSON, New York, and A. GREEN London: When is black beautiful?

W. M. BART, Minnesota: The factor structure of formal operations.

A. M. LUCAS, South Australia: Multiple marking of a matriculation biology essay.

RESEARCH NOTES by M. D. COWELL and N. J. ENTWISTLE, Lancaster; P. KLINE and A. GALE, Exeter; A. F. LAING, Swansea; A. D. FINDLAY, Strathclyde; D. MCNAMARA, Lancaster.

THESES ABSTRACTS and BOOK REVIEWS

Subscription £4·00 *a year or* £1·50 *per part to:*
SCOTTISH ACADEMIC PRESS LIMITED,
25 PERTH STREET, EDINBURGH EH3 5DW

It is obvious that the book is an important reference for the research worker. One hopes too that many of these experimental findings will before long be taken into account in the more general literature on cognitive development. It is difficult, however, to recommend this as a major reference at the undergraduate level.

E. A. LUNZER

A Manual to the Sociology of the School

by R. LAMBERT, R. BULLOCK and S. MILLHAM.
Weidenfeld and Nicholson, 1971.

If a sociologist came to make a study of a school, what features would he need to examine? This book gives one set of answers to this question. This is helpful, for beyond basic aspects such as age-level, catchment area, public or state school, etc. it is not at all obvious what he needs to know, and how to get this kind of information. Should he ask about school uniforms? About games? About homosexuality? About religious instruction? And how should such diverse data be put together, to form some kind of representation of a living organism such as a school?

First of all, we need a plan, a conceptual framework. This will do two things: it will focus on certain key areas, and it will link the study of schools to the study of other organizations. While industrial and commercial organizations have been a frequent object of sociological research, the study of organizations with a more diffuse type of 'product' is still relatively new. Organization theory and administrative science offer little agreement as to what *are* the key areas for study. Lambert and his colleagues have therefore had to strike out on their own—and this book contains a detailed account of their method and its justification.

The book is very clearly set out. The reader is first introduced to the basic concepts which have guided the methodology (a school's goals; subunits; modes of control; formal and informal roles; processes of change; sources of authority; and aspects of the wider social setting of the school). Part Two is entirely devoted to the detailed spelling out of the many sub-variables which comprise each of the basic concepts, and gives the actual techniques (interview guides, questionnaires, scales). All this is obviously the

NFER

COMPUTER SERVICE

The National Foundation for Educational Research has now installed its own computer—an IBM 1130.

We anticipate a certain amount of spare time in the next year or so, and are prepared to make the computer available to Educational Research Workers at favourable rates.

Card-punching will also be undertaken, at competitive rates.

Details

A comprehensive range of programs is available. These include regression analysis, factor analysis (up to 100 variables), a general tabulation program, χ^2 analysis, and analysis of variance. In addition, there is a wide range of data processing programs for those researchers who need to handle a large amount of data.

Rates

Computer: £15 per hour.
Data Processing: £20 per 1,000 cards. Punched and Verified.
Specimen Costs:
Regression analysis of 8 variables on 40 subjects—£4: 15 tables from 2,600 subjects—£9.

Telephone Slough 28161, or write to
A. N. James,
NFER, The Mere, Upton Park, Slough, Bucks.

result of a great deal of careful thought, pilot work and pruning.

Some of the theoretical comments are also helpful. The reader is frequently warned against using the data in a static way; schools are constantly changing, goals have to be balanced against each other, roles often conflict, informal orders shift. 'A society, such as a school, is not a corpse.' Some interesting comments are offered not only on the informal social order, but also on the various kinds of relationships that may be found between the informal and the formal order. Better still, the authors have made a start, in Chapter XI, with the work of integration; they have spelled out not only the key variables and sub-variables, but also some of the expected relationships between them. This section is particularly valuable to teachers and educationists.

In a sense, this is a working document, and the authors' ongoing researches will no doubt continue to change and improve it. Many will wish to question the key variables: why these, rather than others? The book deals primarily with boys' secondary boarding schools: would the same variables be retained if state schools and/or primary schools were to be studied? There are some questionable definitions, too; who, for instance decides what is 'dysfunctional' conflict? There could be other criticisms; for instance, the 'so what' question is largely ignored—how do all these variables relate to outcomes, results, or effectiveness of the school?—presumably because these issues are taken up in other publications. Two elaborate scales are presented (one dealing with controls, the other with values and expressive orientation) using ratings which seem quite arbitrary; where is the item analysis and statistical composition? Similar questions could be raised regarding the Social Adaptation Test and the revised version of the F-scale which are offered. Many of the techniques seem to mix objective and subjective (phenomenological) data; at other times, too much may be left to the interviewer's judgement.

While not beyond criticism, we must count ourselves fortunate to have such a manual. As a focus for discussion, it forces us to look at a concrete/abstract scheme, and agree or disagree with it piece by piece—but at least it is *there*.

A. N. OPPENHEIM

RESEARCH in EDUCATION

May 1971 *Number 5*

Some cognitive and affective factors in subject choice: D. CHILD and A. SMITHERS

Effect of a selection procedure on the placement of children in special schools: P. D. PUMPFREY

The effects of schooling on the performance of bilingual students in tests of intelligence: E. A. YOLOYE

Assessing students' behaviour in group discussion: W. HOPKINS

Educational certification and life chances among British schoolboys: P. R. ABRAMSON

Education and the coming of the general grant—II: N. MORRIS

Education as an applied science — a critique of theory and research: B. SHAW

Book Reviews

Published twice-yearly, May and November

£2.50 per annum, single copies £1.44 net

MANCHESTER UNIVERSITY PRESS

Comprehensive Education in Action

edited by T. G. MONKS

This is a unique book on comprehensive education—unique not only because it reports research into some hitherto uncharted areas of school life but also because of the thoroughness of much of the work. It is particularly welcome at this time of change and flux in secondary education.

Six different aspects of the life and work of teachers and pupils, chosen for their pertinence to a developing system of non-selective secondary education, have been investigated. These are: school administration; curriculum and welfare; attainments; friendships; extra-curricular activities and contacts between the school and the community.

£2·50 in UK only. By post £2·60.

NFER Publishing Division